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ABSTRACT

This presentation comprises the results of a symposium designed to examine some critical PPB implementation problems, suggest alternatives to some current practices in educational program budgeting, reply to some criticisms of the effectiveness of program budgeting as a resource allocation and planning tool, and to consider the future role of program analysis in education. Four symposium papers speak to these objectives: the Program Structuring Aspect of PPB for Education, by Sue A. Haggart; Analysis of Educational Programs, by Polly Carpenter; Organizational Development and PPB for Education, by C. Brooklyn Derr; and Achieving Balanced Implementation of Program Budgeting for Education, by Donald M. Levine. These presentations are followed by the reactions from two discussants and a question and answer section that reflects panel-audience participation. (Author/EA)

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A SYMPOSIUM ON EDUCATIONAL PLANNING AND PROGRAM BUDGETING: AN ANALYSIS OF IMPLEMENTATION STRATEGY*

Presented to

The 1971 Annual Meeting of the American Educational Research Association

Chairman: Donald M. Levine

Polly Carpenter
C. Brooklyn Derr
Sue A. Haggart

Discussants: Selma J. Mushkin
K. George Pedersen

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FOREWORD

As part of the Annual Meeting of the American Educational Research Association, *A Symposium on Educational Planning and Program Budgeting: An Analysis of Implementation Strategy* was held at the Hotel Americana in New York City on February 4, 1971. It hoped to examine some central issues in the implementation of program budgeting for school systems: the function of program structuring in educational planning, the characteristics of analysis of educational programs and alternatives, some organizational approaches to people problems in PPB, and finally, a consideration of a balanced implementation strategy for program budgeting in education. In addition, the Symposium had four purposes: to examine some critical PPB implementation problems, to suggest alternatives to some current practices in educational program budgeting, to reply to some criticisms of the effectiveness of program budgeting as a resource allocation and planning tool, and to consider the future role of program analysis in education.

The program was divided into three sections. First, there were presentations of prepared papers by Miss Sue A. Haggart and by Mrs. Polly Carpenter, both of The Rand Corporation, by Dr. C. Brooklyn Derr, of the Harvard University Graduate School of Education, and by Dr. Donald M. Levine, of the Ontario Institute for Studies in Education. Then the two discussants--Dr. K. George Pedersen, of the Midwest Administration Center, and Dr. Selma Mushkin, of Georgetown University--presented their reactions to the papers. Finally, the panel and several members of the audience participated in a question and answer session.

As chairman of this Symposium, I would like to thank the American Educational Research Association for the opportunity to present these papers to its Annual Meeting. In addition, I would like to thank the authors of the Symposium papers and the discussants for their valuable contributions.

Donald M. Levine
Symposium Chairman

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THE PROGRAM STRUCTURING ASPECT OF PPB FOR EDUCATION

S. A. Haggart*

Program structuring--categorizing the activities of education into programs based on their contribution toward meeting the objectives of education--is an iterative process. As the objectives are initially identified and the program structure is developed, the process serves to clarify the objectives. This clarification, in turn, facilitates the program structuring.

The process is continued with the goal of achieving a workable program structure. The program structure then provides a format for the program budget. The program budget, itself, is a display of the expenditure consequences, over time, of activities resulting from current policies and decisions. Combining this with the program plan, which includes output measures, results in an organized information base--an informational framework--that is useful in assessing current programs and in evaluating the alternatives in terms of their impact on the cost and effectiveness of all the programs. This is in keeping with the overall concept of PPB as a management tool in educational planning. The purpose of the planning is not only to achieve better educational results but also to use resources more effectively.

The activities of program structuring and their relationship to other activities in implementing PPB are shown in Fig. 1. The central location of these activities involved in developing the program structure is not accidental. The structure is based on the needs, the goals, the objectives, and the activities of the district.

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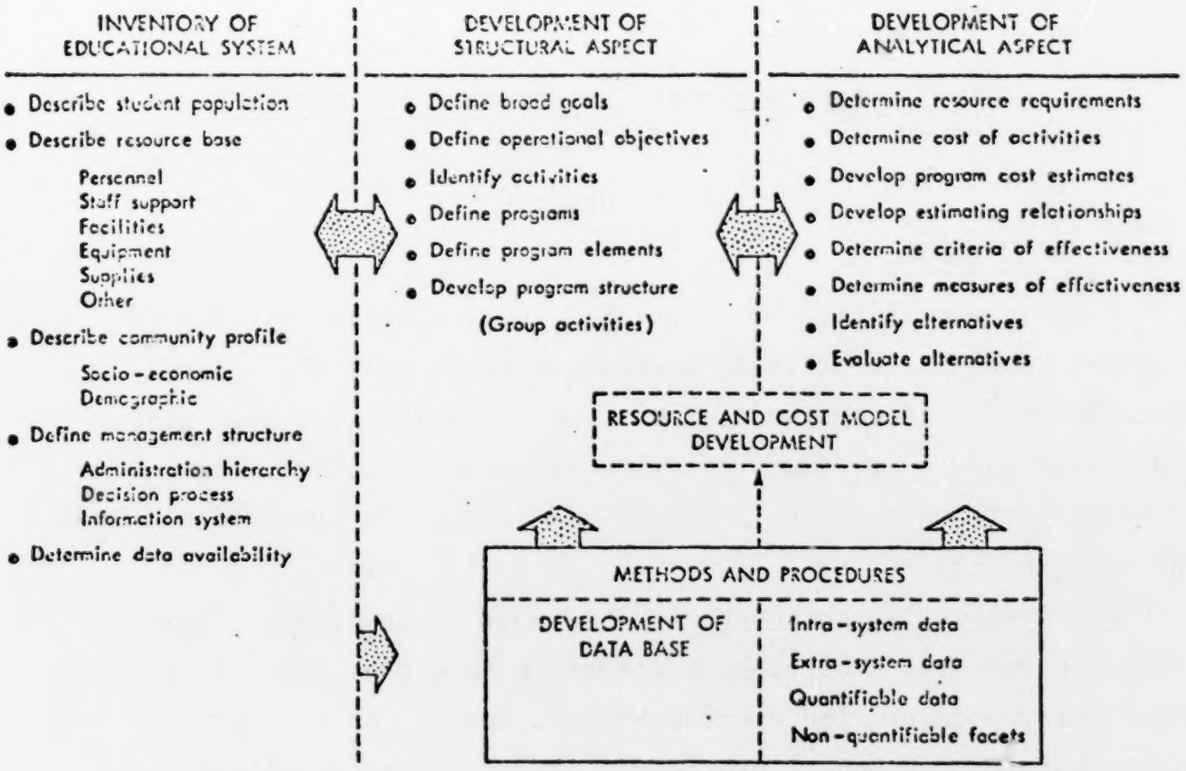

Fig. 1--Schematic of activity areas in the development of a program budgeting system

The program structure, through programs, relates activities (and their resources) to objectives. The meaning of the word "objective" as used in this discussion of the program structuring process should be made clear. The term "objective" is used as a broad, but still measurable, goal or purpose rather than a performance objective or behavioral objective. Schematically, the nature of the program structure might look like that in Fig. 2. The program structure organizes information about cost and effectiveness of programs, subprograms, and program elements. This organization reflects the goals and purpose of the educational system.

Both the nature and the role of the program structure have changed since PPB was first introduced. The change can be traced through the directives, issued since 1965, of the former Bureau of the Budget. In Directive 66-3 of October 12, 1965, the program structure was "a series of output-oriented categories which, together, cover the total

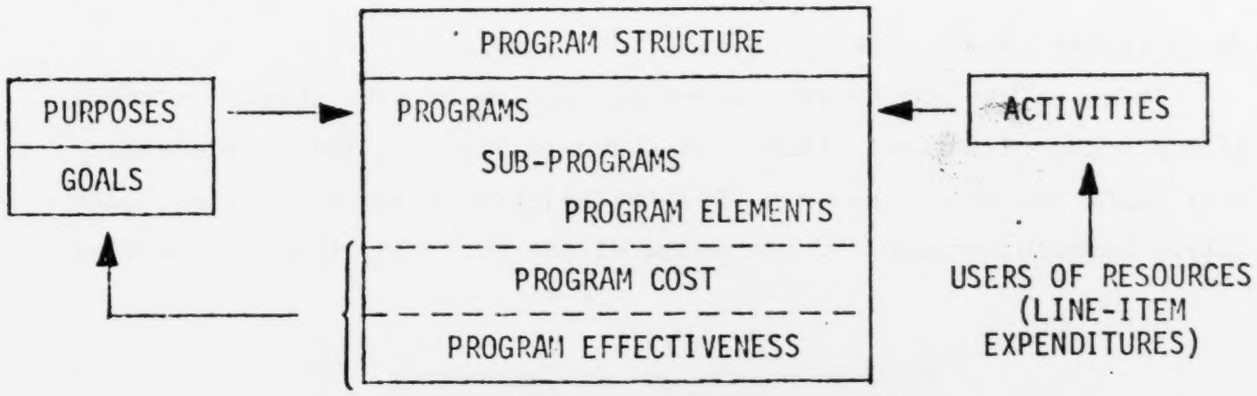

Fig. 2--Nature of the program structure

work of the agency." In the Directive 68-2 of July 18, 1967, this statement was made: "The program structure groups the activities of an agency into a set of program categories that facilitates analytic comparisons of the costs and effectiveness of alternative programs." Analysis is explicitly mentioned. In April of 1968, Directive 68-9 added the idea of the program structure in support of the decision-making process.

Thus, today there is an emphasis on developing a program structure that is *closely tied to the decisions to be made* at different levels of decisionmaking. In decisions about matters of purpose and direction, what should be done? How is it being done? How well is it being done? In addition to being closely tied to the decisions to be made, the program structure should be designed to support the analytical aspect of PPB. If it is not, the result of the PPB effort will, in all likelihood, be just a new accounting system.

In supporting the analytical aspect of PPB, the program structure should be organized to reflect information about the main areas of choice--areas of choice being output-oriented programs at the higher decision levels and program elements at the lower decision levels. In short, program structures should provide informational support for decisions at the highly aggregated level and the lower, more detailed level of operation, such as particular instructional program elements. In addition, these output-oriented programs should be a categorization of all the activities of the district. This categorization should, as stated earlier, be based on the contribution of

the activity toward meeting specific objectives.

These points can be summarized by looking at some characteristics of a program structure. These are shown in Fig. 3. The characteristics under the broad heading, "Relates Objectives and Activities," are fairly straightforward, if the usage of the word objective is recalled.

Relates Objectives and Activities

- o Identifies objectives
- o Provides measurable objectives
- o Includes all activities
- o Allows for growth (flexibility)

Supports Decisionmaking

- o Illuminates priorities
- o Highlights trade-off areas
- o Promotes realistic analysis
- o Provides for imaginative change
- o Is manageable

Fig. 3--Characteristics of a program structure

The fourth item, "allows for growth or flexibility," will be discussed later. In general, these are the characteristics of a program structure that make a program structure, and the resulting program budget, a useful information display. Information is provided about what is being done and how the resources are allocated.

The characteristics listed under "Supports Decisionmaking" require more explanation. An explanation is most easily provided by asking questions about a few currently used or illustrative program structures. The discussion of these program structures will then be followed by the presentation of a proposed program structure for education.

The HEW program budget is shown, in part, in Fig. 4, and an illustrative program structure for a state department of education is shown in Fig. 5. Notice not only the broadness of the programs, but also the fact that the programs reflect the areas of choice within the jurisdiction of the different levels--the Federal and the state level.

PROGRAM DISTRIBUTION OF BUDGET AUTHORITY
(In $ millions)

Program Category and Subcategory	*1968 Actual*	*1969 Estimate*	*1970 Estimate*
Education			
Development of basic skills	2,380.0	2,289.3	2,179.0
Development of vocational and occupational skills	269.3	268.3	304.1
Development of academic and professional skills	1,330.9	966.2	1,020.7
Library and community development	87.9	86.8	96.0
General research (nonallocable research)	25.7	25.6	31.1
General support	35.5	41.3	45.3
Total	4,138.3	3,677.5	3,676.2
Health			
Development of health resources	2,315.0	2,185.7	2,395.6
Prevention and control of health problems	457.1	480.8	480.5
Provision of health services	7,345.7	9,980.3	10,739.0
General support	48.5	54.9	64.4
Total	10,166.5	12,701.8	13,679.4

Fig. 4--Partial program budget for the Department of Health, Education and Welfare

- o Provide general support of school districts.
  - Support for current operations.
  - Support for facilities acquisition.
- o Equalize educational capability of school districts.
- o Support special programs.
  - Designated categories of students.
  - Designated programs.
- o Provide central educational services.
- o Provide central administrative services.
- o Support educational research and development
- o Coordinate Federal programs.
- o Administration.

Fig. 5--Illustrative program structure for a state Department of Education

Each of the few broad programs of these two program structures cover many program elements whose activities contribute toward meeting the purpose of the broad program. Notice the relatively small number of programs that encompass all the activities. Six programs in the "E" of HEW cover an expenditure of approximately $4 billion. In the

illustrative state-level program structure, there is only a slight increase in the number of programs. But again, these programs are the areas of choice within the jurisdiction of a state department of education.

The number of programs has been mentioned. Why is this important? Remember that the program budget is, in part, a display device geared to organizing information in support of the decisionmaker. The decisionmaker is a human being with a limit in his ability to comprehend and act on the information in a massive display of detailed data about every facet of numerous activities. This logical and necessary limitation on the number of programs in a program structure translates into one of the characteristics of a good or workable program structure--a manageable number of programs.

The Pearl River Program structure is shown in Fig. 6. Imagine a

Program Code	*Program Description*
	Basic Instructional Services
60	Language arts, including English and reading
61	Science and health
62	Mathematics
63	Social studies
64	Physical education, intramural, and interscholastic athletics
65	Business
66	Foreign language
67	Unified arts, including industrial arts, homemaking, driver education, and mechanical drawing
68	Art
69	Music
70	Special and vocational education
	Supporting Educational Services
71	Library services
72	Guidance and psychological services
73	Medical services
74	Adult education and summer school
	Other Supporting Services
80	Pupil transportation
81	Operation and maintenance of plant
82	District management
83	Debt service
84	School lunch

Fig. 6--Pearl River program structure

five-year projection of cost out to the right of the program structure itself--the program budget. What does this reveal about the priorities within the district? Is the planner really interested in knowing how much is spent on Basic Instructional Services as opposed to Supporting Educational Services and Other Supporting Services? Is there a reasonable basis for trade-off analysis? Is there any interest in making trade-offs among these three programs? It is, of course, possible to do cost-effectiveness analysis within the programs listed under each of the broad categories. For example, how effectively is mathematics taught using the current level of resources and instructional methods? What alternative methods might be developed and evaluated? And so on. This goes back to the statement that the program structure should be designed to provide informational support for all levels of decision-making.

Analysis at this program element level is necessary. In fact, most of the "analysis" is done at this level. But, the structuring of the program elements into subprograms and then into programs that are goal-oriented increases the information needed to make broad decisions *from a more informed position.* Careful selection of the programs will immediately result in a pay-off showing where the resources are being spent.

Another question can be asked: Does the Pearl River program structure provide for imaginative change or is the status quo locked in because the program structure reflects subjects that are being taught today? The program structure should allow for growth by showing the impact of adding new "subjects" at the program element levels. The total program impact in terms of cost and effectiveness should be visible without having to revamp the basic program structure. If all the educational, or more precisely the instructional, programs are grouped together, very little additional information about the educational impact of particular changes is provided to the decisionmaker. In order to provide this information, a goal-oriented program structure is needed for the instructional activities of the district. This structure should enable the decisionmaker or curriculum developer to focus attention on more narrowly defined educational problem areas.

The same questions can be asked about the Dade County program structure shown in Fig. 7. The emphasis is on subject matter by grade level and on special programs. The Dade County program budget provides more "program" information than does the Pearl River program budget.

Instruction
- Elementary Instruction Program
- Middle/Junior High Instruction Program
- Senior High Instruction Program
- Compensatory Program
- Exceptional Child Program
- Cuban Refugee Program
- Adult Program

Instructional Support
- Supplementary Elementary Services
- Pupil Personnel Services
- Educational Media Services
- Community Services
- Instructional Development
- Staff Development
- School Food Services
- Transportation Services

Facilities Support
- Plant Operations Program
- Plant Maintenance Program
- Plant Construction Program
- Plant Security Program

Organizational Support
- Management Program
- Administrative Services Program
- Personnel Staffing Program

Fig. 7--Dade County public schools program structure

But there is still another question. Do these structures and the resulting program budgets convey sufficient information about how resources are being spent to achieve the *educational* goals of the district? Or about how well the resources are being spent? What program structure helps provide support of this nature to the educational decisionmaker? If the structure is "arranged" by level, then the assumption might well be: The goal is to advance students from one level to another. If this is the goal of education, then these program structures make some sense.

If, however, more reasonable goals can be translated into program objectives, then the activities of the educational system can be categorized into programs based on their contribution toward meeting the objectives of education.

There has to be some middle course between looking at the total instructional program cost as one lump sum and looking at the instructional program cost fragmented into a multitude of costs by individual subject. This means the effort should concentrate on developing a program structure for the instructional program, per se.

In the Rand report on program budgeting for school district planning, an attempt was made to do just that. As shown in Figs. 8 and 9, the instructional program is grouped into five major programs based on what the student is learning. The other programs concerned with the management and support of the educational process are also categorized by a commonality of purpose. In some cases, these non-instructional or non-learning based programs have objectives of their own. In other cases, workload-type measures are used as measures of program effectiveness.

The program structure of Fig. 9 provides information about the instructional activities of the district. On the other hand, the traditional budget, as shown in Fig. 10, provides information about the size of the total budget and about the line items of expenditure. It provides almost no information about what is happening in the educational component of the district's expenditure. A better picture of the difference in information content is shown in the crosswalk example in Fig. 11. Here we see the traditional budget information in the first three columns. Notice that the Account No. 200, "Instruction," is a lump sum of $15.9 million. In a program budget, the dollars shown as the total instruction line item would be shown according to the specific instructional programs of the program structure.

In. Fig. 3, shown earlier, several characteristics of a program structure were listed. These characteristics were the guidelines for designing the program structure shown in Figs. 8 and 9. In general, most of the characteristics of a good program structure are present in the program structure. The program structure allows for growth by providing stable, goal-oriented programs that are sufficiently broad

Learning Fundamental Intellectual Skills Program
  Language and Communication Skills (subprogram)
  Quantitative and Reasoning Skills (subprogram)
  Study Skills (subprogram)

Learning About the World
  Learning about U.S. and Other Societies
  Learning about the Physical World and Living Things
  Learning about Literature and the Arts
  Learning Knowledge and Skills for Everyday Application

Development of the Individual Physically, Socially, and Emotionally
  Physical Development
  Development of Means of Self-expression
  Development of Interpersonal Relationships

Learning Knowledge and Skills in Preparation for Future Employment or Occupational Training
  (classified by occupation)

Learning Academic Subjects to Prepare for Higher Education
  (classified by academic subject)

Assessment, Guidance, and Counseling Services

Program Development and Evaluation

Instructional Resources and Media Services

Auxiliary Services to Students
  Health Services
  Transportation
  Food Service

Community Services

Fig. 8--Programs organized by what is to be learned and by other student-oriented objectives (traditional subjects are program elements)

to encompass a wide variety of program elements (subjects, for example) in the future and still adequately definitive to provide a basis for measuring how well program objectives are being met.

In order to use the program structure as a basis for analysis at the *program* level, it must be possible to specify objective-oriented programs and measures of effectiveness, either single or multiple. It can be argued, rather strongly and rightly, that precise specification of either the objective-oriented, broad programs or their measures of effectiveness is a long way off. Specification adequate for appropriate

Program Number	Program Description	Year 1	2	3	4	5
		($ thousands)				
1	Learning Intellectual Skills	4,655	4,905	5,265	5,630	6,025
2	Learning About the World	4,445	4,785	5,130	5,484	5,875
3	Developing the Individual	2,700	2,920	3,135	3,350	3,590
4	Preparation for Employment	805	865	930	995	1,070
5	Preparation for Higher Education	665	720	765	820	880
	Direct Instruction Total	13,270	14,195	15,225	16,280	17,440
6	Assessment, Guidance & Counseling	990	1,035	1,105	1,185	1,275
7	Development & Evaluation	425	455	490	525	560
8	Instructional Resource & Media Services	250	240	260	275	295
	Instructional Support Total	1,665	1,730	1,855	1,985	2,130
9	Auxiliary Services	1,085	1,185	1,310	1,445	1,595
10	Community Services	700	110	110	115	120
11	Operations & Maintenance	2,840	3,050	3,190	3,480	3,750
12	Capital Outlay	450	725	1,325	1,695	2,195
13	Administration	2,560	2,805	3,010	3,215	3,445
	Total	22,570	23,800	26,025	28,215	30,675
	Physical Data		*Numbers*			
	Students					
	Elementary	20,000	20,510	21,510	22,180	23,070
	Junior High	7,500	7,780	8,090	8,415	8,750
	Senior High	6,500	7,070	7,355	7,650	8,155
	Total	34,000	35,360	36,775	38,245	39,775
	Teachers	1,260	1,310	1,365	1,416	1,473
	Total personnel	1,900	1,975	2,055	2,135	2,220
	Schools	45	46	47	49	51
	Square feet, in thousands	3,250	3,285	3,320	3,450	3,570

Fig. 9--Program budget example

Account Number	Description	Cost ($ thousands)	Percent of Total Current Expense
100	Administration	580	2.6
200	Instruction	15,945	72.2
300	Health	290	1.4
500	Transportation	280	1.3
600	Operations	1,760	8.0
700	Maintenance	915	4.1
800	Fixed Charges	1,100	5.0
	Subtotal	20,870	94.6
900	Food Service	500	3.2
1100	Community Service	700	2.2
1200	Subtotal, Current Expense	22,070	100.0
1200	Capital Outlay	500	
	Subtotal, Current Expense and Capital Outlay	22,570	
1400	Transfers	250	
	Subtotal, Expenditures	22,820	
	Reserves	3,000	
	Total, Expenditures and Reserves	25,820	

Fig. 10--Summary of traditional expenditures and reserves budget

Account Number	Account	Total	Instructional Programs[a]					Noninstructional Programs							
			1	2	3	4	5	Assessment, Guidance, and Counseling 6	Development and Evaluation 7	Instructional Resources and Media 8	Auxiliary Services 9	Community Service 10	Operation and Maintenance 11	Capital Outlay 12	Administration 13
100	Administration	580	--	--	--	--	--	--	50	--	--	--	--	--	530
200	Instruction	15,945	4,410	4,210	2,560	760	630	915	355	215	--	--	--	--	1,890
300	Health	290	--	--	--	--	--	--	--	--	290	--	--	--	--
500	Transportation	280	--	--	--	--	--	--	--	--	280	--	--	--	--
600	Operation	1,760	--	--	--	--	--	--	--	--	--	--	1,760	--	--
700	Maintenance	915	--	--	--	--	--	--	--	--	--	--	915	--	--
800	Fixed Charges	1,100	245	235	140	45	35	50	20	10	15	--	165	--	240
	Subtotal	20,870													
900	Food Service	500	--	--	--	--	--	--	--	--	500	--	--	--	--
1100	Community Service	700	--	--	--	--	--	--	--	--	--	700	--	--	--
	Total Current Expense	22,070	4,655	4,455	2,700	805	665	965	425	225	1,085	700	2,840	--	2,560
1200	Capital Outlay[b]	500	--	--	--	--	--	25	--	25	--	--	--	450	--
	Total Current Expense & Capital Outlay	22,570	4,655	4,455	2,700	805	665	990	425	250	1,085	700	2,840	450	2,560
Percentage of Current Expense[c]		100.0	21.1	20.1	12.2	3.6	3.0	4.5	1.9	1.1	4.9	3.1	12.9		11.6

[a]Instructional Programs: 1. Learning Fundamental Intellectual Skills
2. Learning About the World
3. Development of the Individual Physically, Socially, and Emotionally
4. Learning Knowledge and Skills in Preparation for Future Employment or Occupational Training
5. Learning Academic Subjects to Prepare for Higher Education

[b]Provision of physical plant and equipment.

[c]These are percentages of "Current Expense" excluding "Capital Outlay." This conforms to current practice.

Fig. 11--Crosswalk example (in $ thousands)

analysis at the program element level is possible. In the analytic middle, so to speak, is the subprogram level. Because of these difficulties at the program level, analysis at the subprogram level offers a more productive path to getting the most out of a PPB effort.

Objectives at the subprogram level are easier to specify, measures of effectiveness are easier to determine, and both are easier to agree on. Analysis at this level should serve as a means to achieving a better definition of the goals of education and should aid the search for measures of effectiveness. This will be realized if analysis is jarred out of the comfortable area of program elements or subjects, especially out of the reading-mathematics rut.

The program structure should be designed to support analysis for educational planning. In turn, the needs of analysis should be considered in developing a program structure for education. The goal of the program structuring aspect of PPB for education is to develop a workable program structure that provides the information necessary for all levels of planning. This goal can be realized if the program structuring effort is done concurrently with the analysis of educational alternatives and with the development of an analytical capability.

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ANALYSIS OF EDUCATIONAL PROGRAMS

Polly Carpenter*

In a Planning, Programming, and Budgeting System, the Program Structure summarizes the overall objectives of the school system. These objectives are extrainstitutional in character; that is, they express what the schools are trying to accomplish for their clients--their students and the community that supports them. (Presumably, if these objectives adequately express the needs and desires of the clients, efforts directed merely to keeping the system alive can be minimized.) At the same time, it must be possible to identify the resources and activities that the school system provides with the primary aim of attaining each objective--that is, to group resources and activities "by objective" in the Program Structure. Thus, such objectives must be more highly aggregated than the usual *behavioral objectives*, to which it would be burdensome indeed to assign resources and activities. In addition, the resulting data would be too detailed and too massive to provide the information needed for making decisions at the higher administrative levels where programs and program elements are of concern. (A program or program element is a system of resources and processes that produce something of use outside the program. A *behavioral objective* is a subobjective within a program element.)**

The process of analysis within a Planning, Programming, and Budgeting System generates information that describes educational programs. This information serves two major purposes. The most fundamental is to

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**For a more detailed discussion of these points, see *Program Budgeting for School District Planning: Concepts and Applications*, S. A. Haggart, et al., The Rand Corporation, RM-6116-RC, November 1969, (especially Sec. II).

describe on-going programs--what they are, what resources they require, and what is their effectiveness. The second purpose served is to facilitate rational comparisons of alternative ways to conduct educational programs.

A key aspect of the analysis required to describe on-going programs is a description of what the program actually is--what people, facilities, equipment, and materials are really used and *how* they are used to attain the objectives. The process is analogous to determining actual class size in a given school by gathering data on the number of students in the classes of interest rather than by using some average pupil-teacher ratio for the school or the district. Without this kind of detailed, knowledgeable analysis, a Program Budget is merely a reorganization of the usual budgetary figures; such a budget can easily be misleading because it appears to present relationships between resource use and effectiveness that may not exist.

If the Program Budget realistically describes the resources required by existing programs and their effectiveness, it can be invaluable in helping administrators and other decisionmakers to decide how to allocate resources among programs. This can result in a better alignment with the decisionmakers' judgment as to the proper emphasis for the particular student population and community. (For example, in poorer neighborhoods, reading and vocational education might be more heavily emphasized than in neighborhoods that are more well-to-do.)

In addition, in the process of formulating the descriptions of the programs, data will be generated that will suggest *how* resources may be shifted from one program to another. Such shifts will be necessary if a fixed overall budgetary level must be maintained and if a desired improvement in the effectiveness of a program demands additional resources. In this sense, programs "compete" for resources. For example, if additional emphasis is needed in the reading program, there should be data that show how much money can be saved by cutting down, say, certain extracurricular activities and that estimate what this money can buy in terms of increased resources devoted to reading.

On the other hand, programs may reinforce one another. The reading program may bolster student work in other academic areas, the student

health program may contribute to improved student performance in class and in sports, and counseling and guidance may improve the students' motivation and thereby their performance in all school activities. In general, the relationships among program resources are much easier to estimate than are relationships among program effectiveness. Experimental evidence may be needed to substantiate the latter and should be obtained wherever possible so that the effect of shifts in the effectiveness of one program on the effectiveness of others can be considered when decisions must be made.

In addition to providing data and information describing on-going programs, the analytical approach required by a Program Budgeting System can supply the means to compare alternative ways to meet the objectives of a single program. This is the major function of the analytical effort. In this role, the analysis can:

- Help assess the relative worth of several innovative approaches to attaining the same educational outcome (such as improvement in reading achievement)
- Determine whether a single program is becoming more or less effective or costly as time passes so that steps may be taken to improve it, if necessary
- Help assess the relative worth of the same program for different student populations or in different school settings.

The goal of the analysis is not to provide the planner with the alternative that "maximizes" or "minimizes" specific characteristics; the goal is to provide information to which the planner can apply his judgment in order to choose the alternative that best meets his needs within his constraints, such as budget level or community pressures.

The analysis of the resource requirements, cost, and effectiveness of on-going programs is the base upon which the Program Budgeting System must be built. Decisions concerning desirable shifts in resources among programs will be supported by this analysis but must, ultimately, represent the decisionmakers' subjective value judgments concerning the desirable emphasis among programs. More rigorous analysis can be applied to alternatives for the same program, however, because here the educational outcomes are more directly comparable. This latter type of

analysis is usually oriented to specific educational problems such as improvement in academic achievement in a particular area or dropout prevention.

Two steps are crucial to good analysis directed toward assisting in the choice among alternatives: (1) problem definition and (2) definition of alternative means for solution. (See the shaded areas of Fig. 1.) Obviously, the right solution to the wrong problem is of little value. For example, for a long time the prevention of dropout from junior high and high schools was seen as a major problem in public education. A possible solution to this problem could be to rigorously enforce school attendance laws and to turn guidance and counseling services into antidropout squads. More recently, however, there has been a growing awareness that school dropout may be a symptom of a more serious problem, a lack of perception of the value of staying in school, which may itself stem from a true lack of return to the dropout population for completed schooling. Thus, a mere decrease in dropout may not represent a true gain either for the students or the schools.

The second requirement for good analysis is for the definition of alternative means for solution to the problem (A1, A2, etc., on Fig. 1). The proposal of a single solution for a problem in education is rarely sufficient because:

- o A single solution gives the decisionmaker no feeling for whether he could do better or worse in some other way; the analysis takes on the aspect of a "sales pitch"
- o A single solution gives the decisionmaker no opportunity to exercise his judgment as to the relative worth of various aspects of the proposal
- o A single solution is less likely to uncover additional features that the decisionmaker had not thought of but would find desirable.

To make this thesis a little less abstract, consider the process of shopping for an automobile. If only one car existed within each price range, the buyer would have to be satisfied with the manufacturer's judgment as to the relative worth of styling, economical operation, high performance, safety features, and so on. But the existence of several cars,

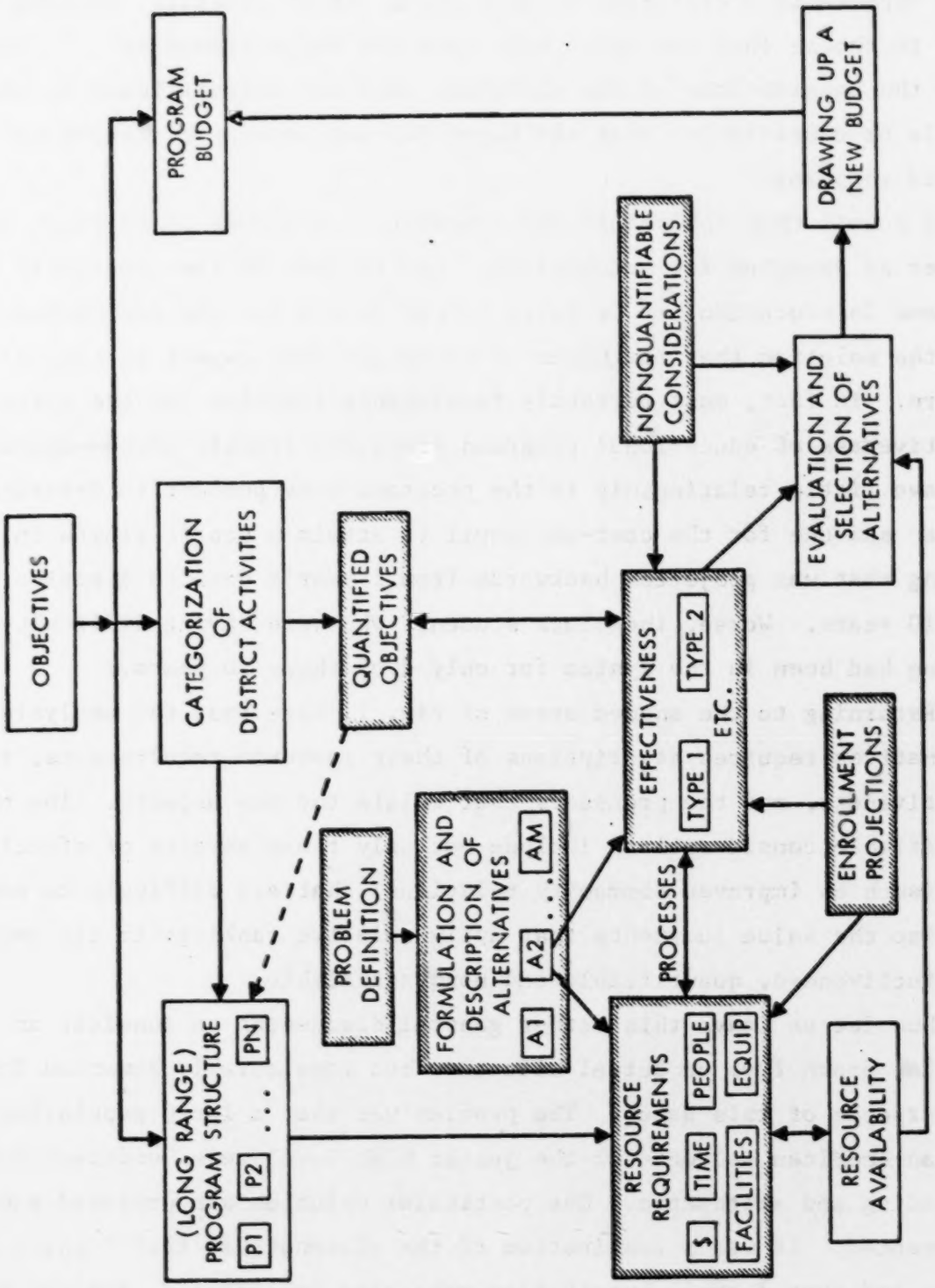

Fig. 1—Analytical activities in a PPB system

each of which may fall within what the buyer can afford and each of which represents a different balance among characteristics, permits the buyer to choose that car which best fits his value structure. In addition, the descriptions of the different cars may suggest features (desirable or undesirable) that the buyer had not thought of before he started shopping.

I submit that "shopping" for educational programs is at least as complex as shopping for automobiles. And because of the complexity of problems in education, it is naive to try to provide the decisionmaker with *the* solution that maximizes or minimizes some aspect of crucial concern. In fact, most currently fashionable formulas for the cost-effectiveness of educational programs are quite frankly window-dressing and have little relationship to the programs they purport to describe. (I even saw one for the cost-per-pupil to attain a year's growth in reading that was projected backwards from 1 year's data to describe the past 10 years. Worse, the black students who were having difficulty in reading had been in the system for only 2 of those 10 years.)

Returning to the shaded areas of Fig. 1, note that the analysis of alternatives requires descriptions of their resource requirements, their effectiveness, and the processes that relate the two aspects. The nonquantifiable considerations include not only those aspects of effectiveness (such as improved community relations) that are difficult to measure, but also the value judgments that apply relative rankings to all aspects of effectiveness, quantifiable and nonquantifiable.

Now let us leave this rather general discussion to consider an example, drawn from an actual situation but considerably reworked for the purposes of this paper. The problem was that a large population of Mexican-American students at the junior high level were "underachieving" in reading and arithmetic. One particular solution was proposed and implemented. It was a combination of the alternatives that I shall describe and that I shall hypothesize were also implemented, for the sake of illustration.

The actual project had three parts: remedial reading and math, the study of occupational technology, and the involvement of parents and students in special activities. I shall describe each of these briefly.

The subject-matter content of the remedial reading and math was not changed from that of the standard 8th grade curriculum. Each was given during one of two periods to classes of 15 students each, approximately half of the size of a normal class. A diagnostic/prescriptive approach was used. Initial diagnosis of reading difficulties was made by means of the Durrell reading test, and of math from the profiles of the students' performance on subtests of the California Achievement Test in math.

Occupational technology was taught through a variety of means. In the classroom, gaming and simulation were used with groups of approximately 15 students each. This activity was geared to the reading and math curricula and took one period every day. The gaming/simulation activity, which is how I shall refer to this from now on, was a highly structured representation of real-world situations. Students played the roles of actual people, such as a park director or a highway engineer. Each unit was supplemented by a study trip to a facility directly related to classroom work. There were about 19 study trips throughout the year. Students helped to make the arrangements for the study trips by use of a conference phone.

The third component was the involvement of parents and students in special activities, which I shall refer to as *involvement* from here on. For involvement of the students, there were two study trips of 4 days each. For example, one trip was to a beautiful park on the seashore; another went to a park in forested mountains. These study trips were again very highly structured. They were intended to break down the stereotyped roles of students and teachers in the classroom and to involve students in a prolonged and intensive learning experience. It was apparent that they accomplished both of these goals. College students were used as team leaders for the learning activities.

The parents of the students in the program were also involved. Before school opened, they were asked to attend a preschool dinner, where they were told what the program was to be about and where their consent was sought for the students to participate in the program in general and in the intensive involvement trips in particular. In addition, the parents were invited to all of the study trips that accompanied the

gaming/simulation activity, to the intensive involvement trips, and to several other dinner meetings throughout the year. At every one of these activities the parents participated along with the students and teachers. For example, they played some of the games during the dinner meetings, and whereas the students taught their parents at the beginning, the parents took great pride in teaching their children toward the end of the sessions. Finally, the teachers made home visits to all of the parents during the course of the year to discuss some activity connected with their children's participation in the program. This assured that each visit had a clear purpose so that the parents were at their ease.

Figure 2 displays what the long-term effects of the program might be on achievement in reading if it were continued. Normal growth, which is represented by the dashed line, would be indicated if a student was achieving at the 5th-grade level in the 5th grade, at the 6th-grade level in the 6th grade, and so forth. An approximation to the rate of growth for Mexican-American students (Coleman, et al., 1966) is shown by the solid line. Because the Coleman report gave reading achievement levels only for the 6th, 9th, and 12th grades, the growth rate by grade can be inferred only very roughly, as indicated.

The experimental program was intended to raise the growth rate at least to normal and, ideally, to provide sufficient initial growth that the student could make up for prior years of underachievement. The program succeeded in the 8th grade in raising the students' growth rate to 1.8 months per month, as represented by the sharp peak, while in the 9th grade the growth rate was 1.1 months per month. Students have continued to show normal growth, as suggested.

Another aspect of effectiveness is the effect of changes in one achievement measure on other measures not affected by the program directly. Logically, one might think that if a student's performance in reading has been improved, his performance in other subjects would also improve, particularly those such as science that require reading skills. Therefore, perhaps the program also raised the students' achievement in science above normal growth, as suggested by the hypothetical upper dash-dot line on Fig. 3. But it is also quite possible that the science program suffered by comparison with the experimental activities. In that

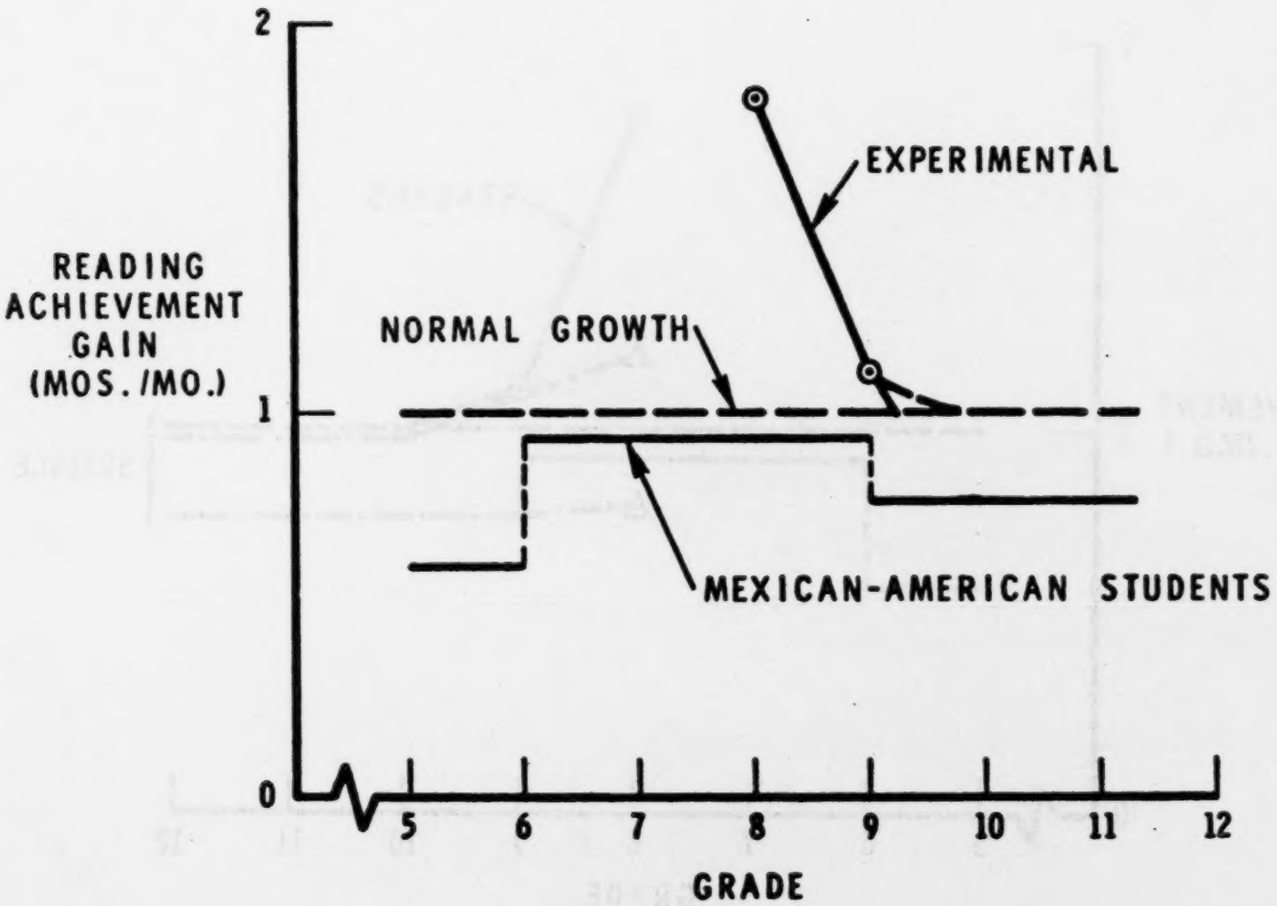

Fig. 2—Long-term growth in reading achievement for experimental program

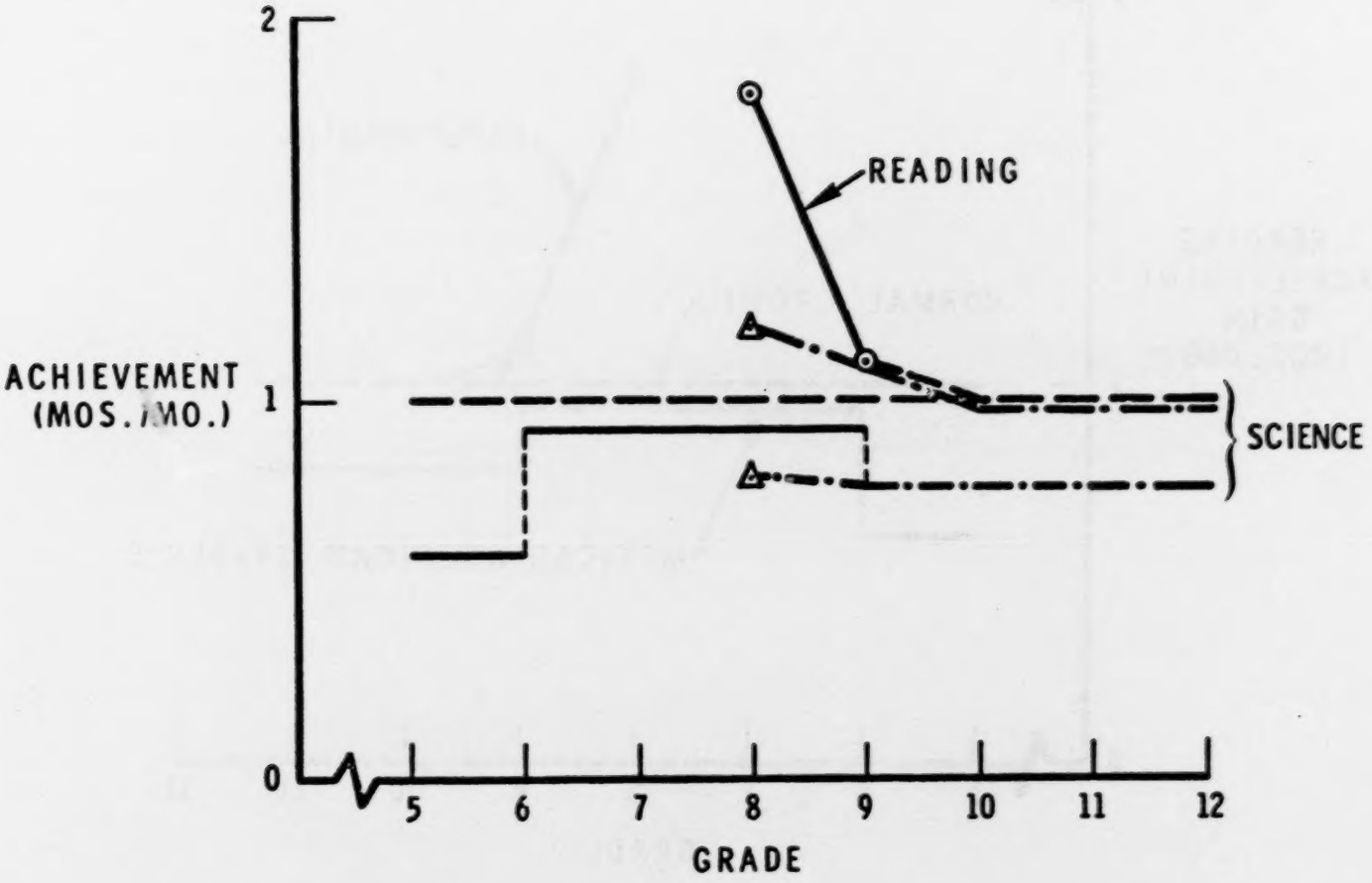

Fig.3—Effects of reading achievement gains on achievement in science

case, the students' performance in science may even have dropped below the normally low achievement for this population. Thus, we must measure the students' achievement in *all* areas of interest so that we will know what the indirect effects are, if any.

For the purposes of illustration, various combinations of the three components I described--the remedial reading and math, the gaming/simulation, and the involvement--were formed, and the cost of each combination for various numbers of students was estimated (Carpenter and Haggart, September 1969). In this way, we derived what we term "equal-cost alternatives," that is, alternative programs that cost very nearly the same. Each alternative differs from the others in terms of numbers of students involved and probably in achievement growth.* These differences are illustrated on Fig. 4. For example, although the gaming/simulation activity might not induce as much achievement gain as would the total program, it could be provided to five times as many students. It might, however, be too close to the dashed line--indicating 1 month per month, or normal growth. The dashed line is critical because the State of California considers any achievement growth less than this to be unacceptable. This would mean that, although the involvement could be given to 90 children for an equal cost, it would not be acceptable if the achievement it induced fell below the critical minimum, as suggested. If the district is not required to meet a minimum standard in achievement gain, it will be possible to trade off achievement gain on the one hand and the number of students reached on the other. This might be an important consideration if the schools need visibility. In that case the gaming/simulation would always be the best choice, because it is the least expensive per student.

The other two alternatives shown may more than meet the minimum requirement so that the choice between them would depend on whether one felt it more important to provide a higher rate of achievement to fewer students or a lower rate of achievement to more students. Because the remedial reading and math program is not particularly innovative, one

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*We estimated the relative contributions to achievement growth by each of the three components after discussing the question with students, teachers, and program directors. No direct measures are available.

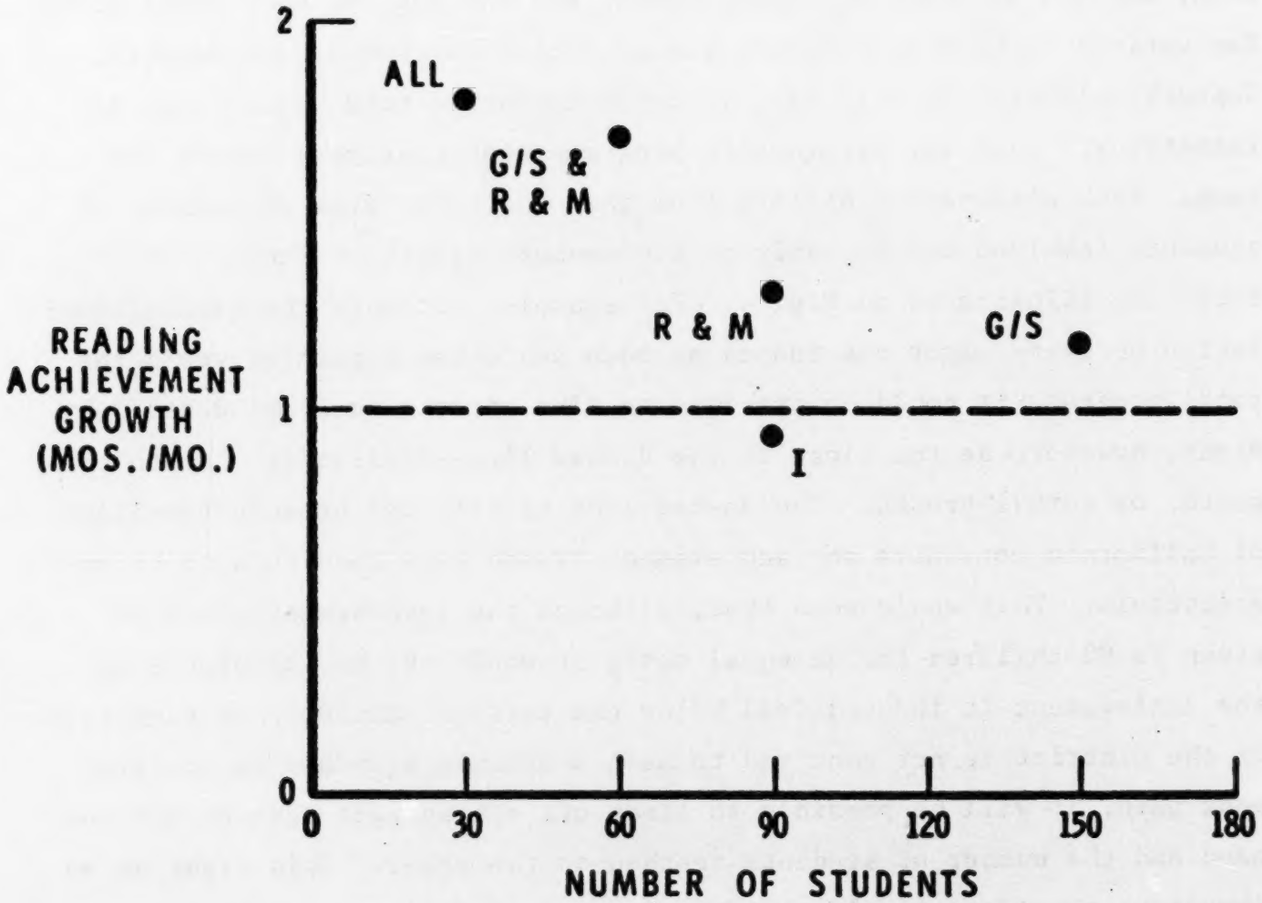

Fig. 4—Effectiveness of alternatives

might be more interested in the gaming/simulation plus reading and math, even though it can be given to only 60 students.

Now let us include another measure of effectiveness in our analysis. Two measures of effectiveness--one, growth rate in reading, and the other, an index of attitude change for each program--are plotted against number of students on Fig. 5. This index was derived by assuming that each alternative would induce a change in attitude relative to the change induced by the original program. (These estimates were derived from subjective opinions of people involved with the program.) Thus, the index of attitude change for the original program is unity, and the other alternatives have indices less than this.* As before, gaming/simulation alone looks risky because it is not being reinforced with backup programs. In addition, it may induce relatively little attitude change; reading and math look even poorer in this regard, while the involvement is too low on achievement gains. Note how the addition of the second measure supports the superiority of the combination of reading and math with gaming/simulation over reading and math alone. Thus, we may want to accept smaller numbers of students and have reinforcing programs, as in the gaming/simulation and reading and math, where we buy achievement gain and attitude change for 60 students, or we may prefer to buy less of each for 150 students with the gaming/simulation alone. Which one a decisionmaker chooses will depend upon whether he considers gains per student or numbers of students reached more important.

I should like to use the hypothetical example just presented to illustrate some of the features of a good analysis within a Program Budgeting System. First, although the problem was defined by the State of California to be underachievement in reading and arithmetic, the

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*A slight digression at this point will help to explain the rationale behind this figure. Analysts have a tendency to lump all measurables in single indices for the sake of simplicity of manipulation and presentation. For example, the number of students in each alternative program might have been included in the indices. Although this would have made for a very pretty picture, it would have been almost impossible to interpret because too many variables would be combined in a single point. As far as possible, it is better to keep measures that are significant in their own right separate.

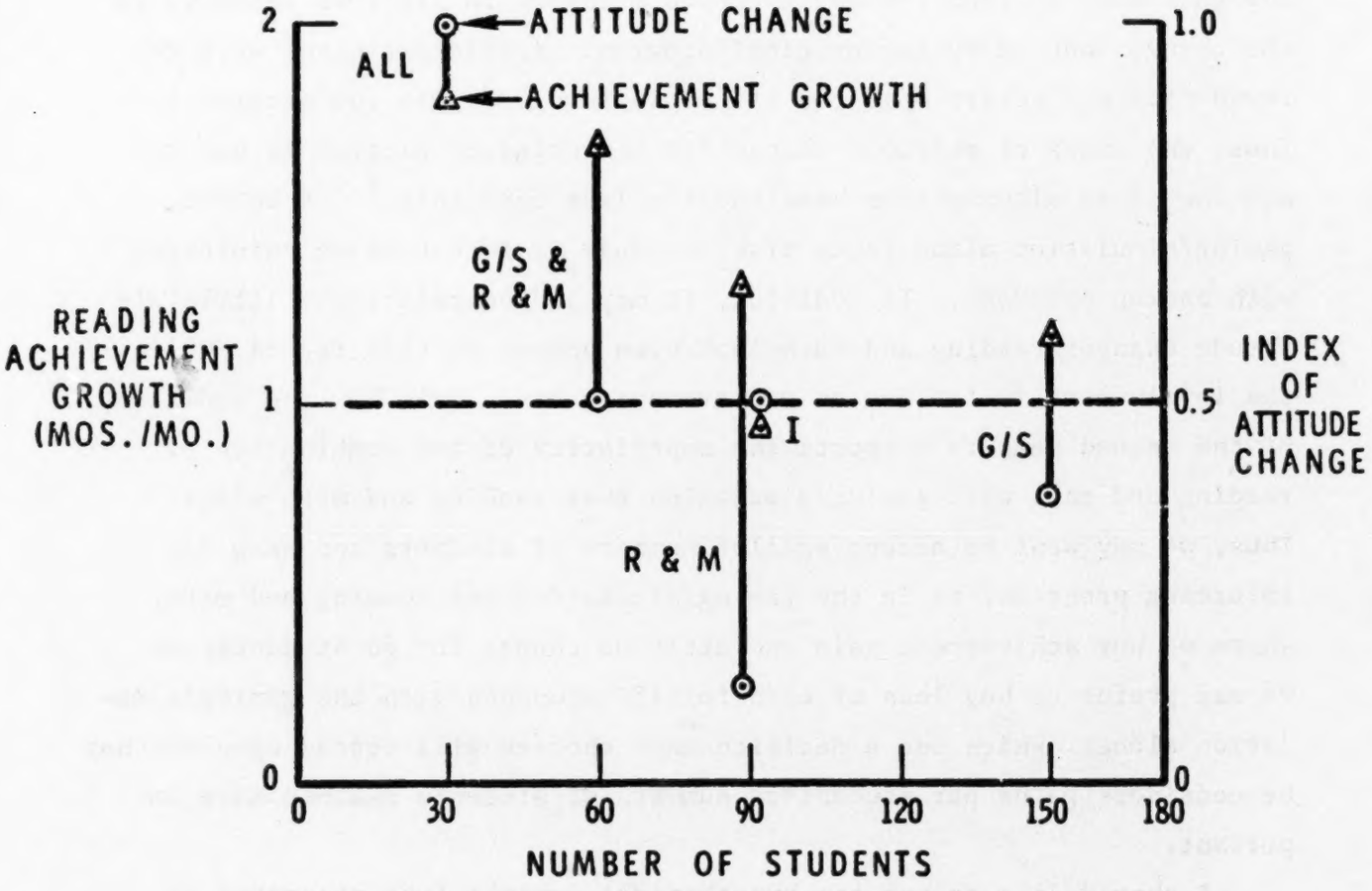

Fig.5—Three measures of effectiveness

designers of the experimental program recognized that the underlying cause might be ignorance in the Mexican-American community of the role that these subjects play in the world of work. *Correct problem definition* was, therefore, attempted and most of the solutions attacked this basic difficulty.

Most of the other aspects of a good analysis, however, can be found only in the hypothetical example, not in the real program. I do not mean to level any special criticism at the program used for analysis in this paper, however; this situation is almost universal in education at the present time.

As discussed previously, the *consideration of alternative solutions* is essential to good analysis in education. These alternatives must be described with care and as they actually work in practice. Then their resource requirements and costs must be generated *from* the descriptions; that is, these data must be built from the bottom up, not from the top down. And, finally, some attempt should be made to find causal relationships between the resources and internal working of the alternatives and their effects.

Because educational activities are complex and are embedded in social structures in the school and community, an important aspect of any program is its effect on teachers, students, administrators, and others involved. In addition, the impacts of the program on other programs in the system should be assessed, whether they be resource impacts or changes in effectiveness. Thus, a good analysis gives concrete evidence that the *peripheral effects of the alternatives were ascertained* as well as possible.

The resource requirements and cost of a program over a period of several years should be estimated so that the effects of short-term requirements for special facilities and the like will be seen in perspective. The same holds true for considerations of effectiveness, which may be only temporary if the Hawthorne effect is responsible. Thus, a good analysis *estimates the cost and effectiveness of the alternatives throughout the probable life of the program.*

Now that I have discussed the characteristics of a good analysis, what are the characteristics of a good analyzer--one who can generate

the kinds of information needed? I would list two:

- o A thorough knowledge of the educational system and an appreciation for the complex interactions among the various parts of the system
- o A rational, objective, intellectual approach with a large measure of uncommon "common" sense

The possession of a kit of sophisticated analytical tools is of much less importance than these two characteristics. In fact, people who know how to use sophisticated techniques often tend to apply them whether or not they have anything to do with the problem at hand.

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ORGANIZATIONAL DEVELOPMENT AND PPB FOR EDUCATION

C. Brooklyn Derr*

The Planning-Programming-Budgeting System (PPBS) is a term used to represent a relatively new method for allocating resources in organizations. PPBS helps the planner to determine how resources are being used and how they can best be used in the future [1].

The four major components of PPB, according to Haggart, are: the structural aspect which involves setting objectives and developing a program structure; the analytical aspect, including cost-effectiveness analysis; the control aspect which has to do with keeping apprised of how effectively the program is being implemented; and the data and information aspect or getting feedback over time to make meaningful modifications [1, p. 7].

It is obvious that the human problems within an organization are very important, even critical. Humans constitute the work force responsible for exercising efficiency and meeting organizational goals. It is impossible, therefore, to separate them from such issues as accountability or effective planning. Indeed, in the PPB context it has been recognized that human and other organizational problems are both important. Haggart says:

> It should be obvious that solving the people-related problems as a first order of business would have a direct effect on the magnitude of the data-related problems [1, p. 192].

This paper addresses some of the people-related problems in organizations and criticizes current PPB practice in education for not effectively using human potential. The paper also presents a new method, called organizational development (OD), which could be used in conjunction with PPB to effectively cope with the human problems and thereby improve both efficiency and effectiveness. Finally, the paper makes

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a specific proposal for combining the two approaches. PPB and OD, when used concurrently, allow for total systemic planning, and the dual approach addresses itself to both the data-related and people-related problems in the organization.

PPBS IN EDUCATION VERSUS SOME PRINCIPLES OF EFFECTIVE HUMAN BEHAVIOR IN EDUCATIONAL ORGANIZATIONS

In three of the PPB phases mentioned above, principles of effective human behavior in educational organizations are frequently violated. Only the analytical stage is relatively free of the so-called "people" problems. It is possible that pointing out some of these violations will help educational planners using the PPBS method to effect a stronger program. *Indeed, it is a thesis in this paper that the successful utilization of PPB as a total system-wide planning tool will not be realized unless the organization concentrates concurrently (at the same time as the PPB program is being implemented) on changing its human organization.* Some current practices in planning, programming, budgeting systems which violate principles of effective organizational behavior will now be considered.

The first principle of effective human behavior in educational organizations is that people are not really committed to decisions and goals they have no part in making. This is one reason why there is so much subversion of the formal organizational goals and objectives by informal peer groups at lower hierarchical levels in the organization. It is important in the goal-setting process that persons at all levels of the organization be involved in setting objectives appropriate to their own spheres of work. Involving people in this way enhances their commitment to the whole program and facilitates the future implementation of the plan.

Many planners using the PPBS method in school systems do not allow for a two-way goal-setting process. In the objective-setting stage of the PPB program, those persons in the organization who participate are often required to set objectives within the goal parameters already established by those in the upper echelons of the hierarchy. In fact, strong emphasis is placed on statements such as the following:

> objectives should be constructed in such a way that they relate upward to one or more general expressions of public intent [2].

In other words, the emphasis is on relating one's objectives to the organization's goals, rather than on also considering the goals of those in the system and allowing them to influence the purposes of the organization. This rather limited form of goal-setting with its one-way thrust (downward) could tend to prevent subordinates from really "owning" the objectives they set. A goal-setting process should be designed that allows for the school's goals to be influenced by those who are actually responsible for implementing them at various levels in the organization. Subordinates should set objectives that are bound by rather broad organizational (public) parameters but which are also personally meaningful within those limits.

Related to two-way goal setting, another principle of effective human behavior in organizations is what might be called shared organizational control. That is, most human systems operate under conditions of change wherein it is impossible to completely legislate subordinate behavior. It is necessary to define roles and responsibilities somewhat broadly and hope that a subordinate will act responsibly within such a context. This fact necessitates that relationships of trust exist between superiors and subordinates. Also, the idea of effective hierarchical control is especially inappropriate for school systems. Teachers and administrators identify with the professional world and naturally resist strict hierarchial controls. In school studies in both Chicago and Boston, researchers have found a very high amount of subordinate independence existing at the principal and department director levels [3].

The type of control system used tends to govern the nature of relationships between persons in the organization [4]. In most organizations, communication and influence networks tend to be informal in nature. A method such as PPBS tends to formalize those relationships such that resources can be systematically allocated rather than bargained for. It can be expected that many powerful persons in the organization--those who have already established their networks--will oppose any program

which changes their influence. Others may see the new method as an opportunity to gain influence quickly under new conditions. Also, under more rational PPB control system, there may be little to gain from fostering influence relationships. Power in the organization could be redefined to mean entering into relationships that conform to the goal expectations of those who distribute the pay or those who plan long-range objectives. If the control system becomes too rational, one objective may well be to set very safe objectives so as to not be pena;-ized and to seek a condition of autonomy within the parameters of the control system.

Crozier discovered, in studying two public bureaus in France, that subordinates sought to define the rules and then proceeded to do what was required within those rules. Of course, the rules could not possibly govern their total behavior, so they were able to achieve great personal freedom within the rules [5]. This is a condition of lack of creativity at the expense of organizational accountability or control.

Organizational controls originating from superior and conveyed downward to subordinates (e.g., rules, processes) should be accompanied in effective organizations with meaningful upward (from subordinates to superiors) forms of influence and communication. When control is one-way, there tends to be token compliance to the "letter of the law," overemphasis on the items to be measured and used as criteria, overemphasis on the short- rather than the long-run, covering up infractions of the rules and exercising other forms of dishonest behavior, and a reduction in subordinate creativity which comes from allowing discretion within which creative potential can be unleashed [6].

Most planning, programming, budgeting schemes currently being employed in American education rely heavily on hierarchial controls in order to work effectively. Superintendents demand written objectives by a certain date. These objectives must conform to the rules for writing them. Subordinates are expected to comply with rather stringent system constraints and manage their own objectives within those parameters. The threat of less pay or of losing a particular position looms as a punishment. All of this assumes a high degree of confidence in the ability of the upper echelons of the hierarchy to be able, through

modern techniques of analysis, to effectively control the organization, to make it accountable.

However, there is now emerging some experience with the PPB method in education which suggests that while the objectives can be well-written, measured, and even analyzed so that a person is held accountable, it is quite impossible to force such a person to risk setting objectives outside control parameters imposed by the superstructure. That is, objective-setting tends to be a low-risk process whereby subordinates emphasize the mechanics and concentrate on doing little more than is required of them. This is indicative of a one-way control system, and it points out the limits of control even when the techniques of PPB are used effectively.

Those who have commented on PPBS have alluded to the lack of hierarchial control as a problem for operationalizing the method; E. S. Quade, in discussing systems analysis for nonmilitary planning, openly admits that PPBS may come more slowly to nonmilitary organizations because the latter are "less controlled by the top." [7] Aaron Wildavsky also states:

> The kinds of problems for which program budgeting was most useful (at DOD) also turned out to be problems that could be dealt with largely at the top of the organization . . . the program budget group that McNamara established had to fight with generals in Washington but not with master sergeants in supply [8].

Complete hierarchial controls are not possible in educational organizations nor are they advisable because they tend to stint creative risk-taking and promote a system of rewards based on reaching low-risk objectives.

Closely related to the argument made above about shared organizational control, is the need in most educational organizations for improving their decisionmaking and problem-solving procedures.* Not only are the goals of educational organizations broad and unoperative (and

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*The author is indebted to William E. LeClere, who, after having read the manuscript, made these suggestions. Mr. LeClere is currently Vice President of McBer and Associates, a private consulting firm involved in organizational development activities and located in Cambridge, Massachusetts.

PPBS is a very useful tool for making the organization live according to its goals), but persons in educational systems very often are lacking in decisionmaking and problem-solving skills.

Many teachers have heretofore existed in self-contained classrooms and have made their own decisions. Principal or building autonomy is already well-established in school systems. In the author's own research in the Boston School Department, for example, it was discovered that someone does not dare enter the principal's domain (i.e., the building) without his expressed approval. Also, principals report meeting with their supervisors on the average only once each month, and they formally review the performance of their schools less than monthly. They are very autonomous.

The point is that many school people have little experience with group decisionmaking or problem-solving models. If the PPBS method were to allow for shared organizational control, there may have to be additional training given to school personnel to help them to effectively resolve their joint decisions and problems.

A final principle of effective human behavior in educational organizations is the social psychological ideal that employees must, in order to be effective, exist in a motivational climate that allows them to grow and develop. Money is only one motivator of performance and it is not the primary motivator among professional groups [9]. In order to be effective, a climate should exist in which the individual can be given personal responsibility for finding solutions to problems, where he can set goals and be allowed to take moderate risks, and where he gets concrete feedback on his job performance (Litwin and Stringer [9]).

The assumptions that superiors make about subordinates also inject an important motivational quality into the organization [11]. Some tend to see their subordinates as lazy, irresponsible, materialistic, dependent, and needing to be tightly controlled. When such assumptions are made, the subordinates tend to conform to expectations. This is the pygmallion effect. However, when adults are treated as intelligent, responsible, ambitious, creative, growing, goal-achieving and understanding persons, they may at first wonder "what does he really want" because such treatment is not normal, but they will usually respond to the higher expectations.

When a superior and his subordinate interact to set meaningful objectives, it is important that such a relationship be open and evaluative, that it be built on mutual respect and trust, and that it encourage the surfacing and resolving of disagreements or conflicts between the two persons. Such a relationship allows for feedback, encourages the subordinate to openly discuss his concerns rather than tell the boss what he thinks the latter wants to hear, and it creates a better motivational climate.

Many current PPB practices in education do not encourage an effective motivational climate in the organization. Decentralization of administrative responsibility and merit pay scales, which often are part of a PPB program, do reward individual performance and should make administrators feel more trusted and more responsible. However, money (pay based on performance) is still the primary motivator. Because the stakes are so high, subordinates are often encouraged to set low-risk objectives. Also, they are not usually given systematic feedback on their behavior. The emphasis is on writing measurable objectives and being evaluated on those objectives. In other words, a climate does not exist in which superior and subordinate can openly discuss their feelings about the system-wide goal constraints, can talk about their behaviors one with another and try to improve based on some evaluation, and can legitimately disagree and then systematically try to resolve those conflicts.

While the position of the administrator in the school system may have improved as a result of PPB, the total organizational climate of the system may be much less conducive to fostering effective human behavior as a result of PPB. Teachers and students have often been ignored in PPB. When they have been involved, they have had little opportunity to influence the system's goals or to set meaningful objectives. Some proponents of PPB have quite distrustful attitudes about lower-level subordinates. Schick argues, for example, that in PPBS the budgeting and analysis-planning phases should be separate because subordinates in the "bowels of the organization," while they do have budgeting information, lack the insight and competence to be involved in analysis [12].

It is the author's impression that the motivational climate could be improved in educational organizations in conjunction with using PPB, and that the good motivational features of PPB (e.g., decentralizing responsibility, setting objectives, feedback) could, with modification, be used to highly motivate both teachers and students in the school system to be more effective.

Three principles of effective human behavior in organizations have been discussed. The current practices of PPB in education have been criticized as they relate to those three principles. A new approach to making PPB a more effective organizational planning tool will now be considered.

ORGANIZATIONAL DEVELOPMENT

Organizational development is a method of intervening in the processes or organizations for the purpose of planning relevant organizational changes. Organizational development typically involves the following kinds of activities:

- o Getting together an OD team composed of the right combination of expertise.
- o Entering the organization and negotiating the organizational change contract in such a way that there is maximum opportunity to use the OD methods.
- o Collecting data.
- o Diagnosing the organizational problems.
- o Feeding back the data to the client for joint action-planning.
- o deciding with the client on the most appropriate change intervention.
- o Sustaining the intervention until such a time that the client has developed his own capacity for organizational change and is ready to sever his relationship with the OD specialists.

To understand what OD does and how it can prove to be useful for educational planners using PPB, a clear understanding of its purpose is essential. The overall goal of OD is to change the culture of a living system so that the organization becomes "self-renewing." Self-

renewing organizations are adaptive in the long run; hence, they are not set in any single organizational structure or procedure. While there is typically some formal hierarchy, organizational form follows function. People are organized into groups to solve specific problems; both the structure of the organization and the methods used in the groups change to suit the nature of the current problems. In a self-renewing educational organization, for example, the system would choose a process of goal setting and a method for setting objectives which would facilitate the specific problems of the system (e.g., involving certain community groups).

In self-renewing organizations, decisions are made by persons who have the information. Instead of being preoccupied with identifying the decisionmakers according to who has legitimate authority, emphasis is placed on the best possible decision. Decisionmaking requires adequate information; all too often, those in authority simply lack the information or have it in distorted form. The organization takes all steps necessary to open up channels of communication.

In self-renewing organizations, there are sensing processes and feedback mechanisms to tell when changes are needed. This is already a feature of many PPB programs. Self-renewing organizations are also managed according to specified goals accepted by all the members. The organization learns systematic methods (e.g., problem-solving techniques) for dealing with obstacles to reaching these goals. The goals, naturally, are subject to change as the environment of the school district changes, but planners in a self-renewing organization should be able to count on possessing a set of objectives arrived at by two-way consensus which would be "owned" by the whole organization. This would enhance the potential for implementing the PPB program because the organizational members would already be committed to the goals and objectives chosen by decisionmakers and planners as the objects of the planning process.

Finally, in self-renewing organizations there is a culture or climate which permits the features mentioned above to take place. There is open, direct, and clear communication. Conflict is viewed as inevitable and natural and is brought out and managed so that it can be used creatively instead of impeding the work to be accomplished. Creativity,

even wild dreaming, is encouraged. New ideas and new persons and groups are seen as additional resources rather than as troublemakers and threats A climate of trust is developed wherein people more willingly exchange information.

Those are the goals of organization development. However, such an ideal state might seem very difficult to attain. What are some of the OD methods used to help organizations become self-renewing?

Program 30 at the Center for the Advanced Study of Educational Administration (CASEA), at the University of Oregon, has systematically developed a technology called "laboratory training for organizational development" which attempts to develop self-renewing organizations. There are other OD technologies available, but the CASEA methods exemplify the use of the OD methodology. Typically, organizational training as practiced at CASEA uses three major stages to bring into operation a more self-renewing school organization:

Stage 1: Improving Communication Skills

Functions within schools, as in all other organizations, are "carried" through interpersonal interactions. Typically, human beings in organizations lack skill in communicating clearly and succinctly. In the first phase of organizational training, members of a school or district improve their discussions about interpersonal or interrole problems by simultaneously practicing new ways of communicating. The first step, then, is to build increased openness and ease of interpersonal communication among the participants by training them in the skills of paraphrasing, describing behavior, describing own feelings, and checking their perceptions of others' feelings. The intervention aims to develop skillful, constructive openness; by doing so, it helps the staff develop increased confidence that communication can have worthwhile outcomes.

Stage 2: Changing Norms

After increasing communication skills, the next step is to build new norms that support interpersonal openness and helpfulness among the

members of the group being trained. As a lever with which to change group norms, we can use the desires of the participants to ameliorate some of their actual problems. For example, we often invite the faculty of a school to state some frustrations they are encountering in the school and to practice a sequence of problem-solving steps to reduce these frustrations. An activity like this can lead to reduced frustrations and to the satisfaction of knowing that others value the contribution one has made to organizational problem solving. Changes in organizational norms of openness and candor can occur because staff members find themselves behaving *in new ways in their actual work-groups*.

Stage 3: Structural Change

The culminating phase of organizational training builds into the organizational structure new functions, roles, procedures, and policies. The new structures should become part of the fabric of the school organization. They should be formal and institutionalized with budgetary support.

Of course, each of these training stages follows a very careful entry into the organization, a thorough and systematic diagnosis of the organizational problems that need to be addressed during the training (e.g., communication problems, authority and power problems, decision-making problems, and conflict resolution), and joint planning with members of the organization itself so that there is an internal understanding of, and a capacity for, carrying out the interventions.

This is a very brief description of the organizational development method. A proposal for effectively combining it with the PPB approach will now be considered.

ORGANIZATIONAL DEVELOPMENT AND PPB

There are several assumptions underlying an attempt to join the OD and PPB methods for educational planning. First, it is assumed that the employees are considered to be valuable resources. Just as other scarce resources are managed using the PPB method, there will be an attempt to use the costly human resources of the organization in the most effective way.

A second assumption underlying this proposal is that while the PPB system will continue to use some prescribed methods, there will be an attempt to use more effective means for involving people in the organization. The analysis, program structure, and data collection phases of PPBS will remain essentially the same, but the goal-setting and objective-setting aspects will be changed significantly and there will be some modification in the control phase. In other words, there is nothing sacred about the PPB method. It can be changed.

A third assumption underlying the marriage of PPB and OD is that this approach to educational planning and change will be systematic (system-wide) and pervasive (massive in scope) over time. It would take at least three years to implement such a program. PPB in and of itself is pervasive in that it demands a very substantial organizational commitment, even calling for reorganization in some cases. Both organizational development and PPB would be more effective if they could involve and affect all aspects of the system. Thus, a commitment to this program demands financial support and commitment by the organization, especially by the top level of the administrative hierarchy and the school board.

Phase I. During the first phase of the program (sometime in mid-year), four persons comprising the Department of Organizational Development will be selected. The Director should be very experienced in OD methods as they apply to school systems. He should have an advanced degree in a related field of study. He and his staff should also receive special instruction in PPB procedures, and those on the staff who are not already skilled in the use of the OD technology should receive special training so that they are at a certain level of proficiency before the following summer. Such intensive "quicky" courses in OD are offered by such places as the Institute for Applied Behavioral Science (NTL), the Sloan School of Management at MIT, the Human Relations Center at Boston University, and by other private consulting organizations. The OD Department should also be placed in a position of influence close to those in the upper echelons of the hierarchy so as to be seen by the rest of the organization as legitimate. Outside consultants who are expert in organizational development should also be employed to help

diagnose the school organization and to plan, jointly with the OD Department, the summer training events.

At the same time, a Department of Educational Planning and PPB should be established in which those who have the skills and knowledge necessary to effect the PPB method in the school organization would be placed. Those working in the area of PPB should also be exposed to organizational development and should be encouraged to gain knowledge about OD.

The two departments, OD and PPB, should spend about 20 percent of their time meeting together, trying to better understand one another's work and orientation. Sometimes an outside (third party) consultant should sit in these planning meetings to help the two units surface their disagreements, resolve their conflicts, and better understand one another.

Phase II. The second phase of the program would be more OD oriented and would take place during a two-week summer workshop for all teachers and administrators in the school system.

The first four days would be devoted to instruction in personal goal setting and achievement motivation training. An organization such as McBer and Associates in Cambridge, Massachusetts, specializes in this training. The training would stimulate thought about why setting objectives is important for one's own life, would help participants to be more achievement oriented (therefore more effective) through goal setting, and would help the participants to formulate one personal development goal related to their jobs and one job improvement goal for making their work more effective.

The next two days would be devoted to instructions from the PPB department on how to write measurable behavioral objectives. The principles and form for writing these statements would be discussed and rehearsed.

Five days would then be spent on building a general organizational climate between working groups in the organization which would permit them to work more effectively together. New norms would be introduced (e.g., openness and trust). Communication training would take place. Conflict resolution training would also be on the agenda, as would

decisionmaking and problem-solving modes.

A significant part of the above training would be to get participants to understand a new structure in the organization called the "linking pin" structure. In every school there will be department or unit (e.g., grade) heads elected to leadership positions by their peers. They will also receive extra salary. These persons have the responsibility for reporting the school system constraints (e.g., money, goals, time) to their teachers and for carrying teacher group decision and requests to the principal. The department or unit head also has some released time to set objectives with teachers. Personal development, job improvement, and system objectives are to be set.

The department or unit heads then set objectives with the Principal. They set their own objectives with him in one conference and hold a second conference to communicate to him the desires of their group members.

The principals set objectives with their superiors and the system-wide department directors with theirs. They also have two kinds of conferences, one for personal objectives and the other for school or departmental objectives. Those at the top of the organization have two similar meetings with the Superintendent. The Superintendent also meets with the school board in a like manner.

Thus, there is a linking between teachers (represented upwards by the department head as linking pin), department heads (represented upwards by the principal), members of curriculum and special departments (represented upwards by the department director), and the assistant and associate superintendents (represented upwards by the Superintendent). And, there is similar linking downwards so that communication and influence flow in both directions. Figure 1 describes the linking-pin form of organization [13].

Members of the OD Department might be present throughout the year to help the linking pins and their subordinates negotiate objectives and evaluate performance.

The final two days of training in Phase II would be devoted to working in effective superior to subordinate and linking pin to group relationships. The role of a third party as an intervening consultant would be established. How to negotiate, communicate, built trust, and give and accept feedback could be topics for consideration.

Phase III. A third week immediately following Phase II will be devoted to deciding the system's goals for the forthcoming year. Administrators and teachers will again be involved, as well as community representatives, parents, and students. Each school faculty will set its goals in its building and will include students, parents, and community in the process. The school board, Superintendent, and top staff will also agree on system-wide goals. The system-wide department directors with their staffs will also set appropriate goals. All of this activity will take place in the first three days of the training.*

Each school will then select three persons plus the principal to represent it at the system-wide goal-setting meeting. The department directors will all attend the meeting, as will the top staff and members of the school board. This mass meeting will be for the purpose of sharing the different goals and agreeing on some mutually acceptable goals for the entire school system (some goals may fall outside the system-wide parameters and could be continued at the individual unit level).

These goals will later be rewritten with the help of the PPB department and it is expected that the various units will set objectives within this system-wide framework.

Phase IV. This is a period, say during the first two months, in which the teachers and administrators are to write their objectives (one personal development, one job improvement and requested system-wide objectives) and report them to their linking pin. Members of the OD department will try to sit in on as many of these initial conferences as possible.

A program structure will then be built by the PPB department based on these objectives.

Interim conferences between linking pins and subordinates are then to be held at least every two months to try to communicate downwards

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*Such massive goal-setting is possible using organizational development techniques. McBer and Associates have, for example, done massive goal-setting. This is also part of the "charette" technique now being used by many school districts to involve the community.

and upwards, to ascertain to what extent the various objectives are being reached, and to give feedback to superior and subordinate alike on his performance over the past few months.

Forms will be used and completed during these conferences that will permit the parties to evaluate and communicate needed information to the PPB department for the control and data gathering phases. However, to make this a two-way evaluation both the linking pin and his subordinate must sign the evaluation-information form. If they cannot agree, they will meet with a representative of the OD department and try to resolve their differences.

Phase V. Phase V, which may not begin for one or more years after Phase I, will involve teachers training their students in the techniques of objective-setting. Both teachers and students will then set meaningful objectives using the same techniques. Students may set one or more personal development goals. They may set more traditional (i.e., core subject) learning goals. They may set educational experience learning goals. The teacher may also have some system goals to which he must conform, or he may have experimental learning programs in progress. Thus, the student may be required to set some goals within the parameters of those teacher-imposed constraints. However, it will be important to protect the students so that they really can set some meaningful objectives for themselves.*

Again, it is possible to train teachers to teach personal goal-setting and to arouse achievement motives so that objectives will be meaningful to students. Such a technology for teaching teachers such techniques is presently being developed at Harvard, at the Center for Humanistic Education attached to the State University of New York in Albany, and especially at McBer and Associates in Cambridge.

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*Student-teacher goal-setting is presently taking place in the Louisville, Kentucky, public schools.

SUMMARY

Current practices in PPB in educational organizations have been criticized. They impose one-way objective and goal-setting. They put too much emphasis on hierarchial control. They foster unproductive motivational climates in the organization.

A new method for making human behavior in organizations more effective has been presented. This method is known as organizational development and, when used in conjunction with PPB, could prove to be an effective way for planning system-wide changes and programs in educational organizations.

One possible way to combine the two approaches has been suggested in the paper. This proposal should give the reader some idea of the kind of training events that would take place--and some of the expected outcomes--if PPB and OD could be married to form a more complete approach to educational planning.

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ACHIEVING BALANCED IMPLEMENTATION OF PROGRAM BUDGETING FOR EDUCATION

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The Planning-Programming-Budgeting System represents an attempt to coordinate rationally the diverse budget, control, analytic, and planning capabilities of a functioning organization. This coordination is facilitated by an organizational structure oriented toward a particular definition of system objectives. By grouping activities into programs, PPB stresses the close relationship between system objectives and system functions. Through program budgeting, the administrator incorporates efficiency and rationality into the system structure, but he also establishes preconditions for serious investigation of the relation of system performance to system objectives.

Traditionally, of course, analysis within organizations is a crisis response: When part of the system becomes dysfunctional, it attracts attention, and information is collected so that the administrator can take remedial action--usually directed towards his subordinates and not towards the system itself. Thus, departments and their assigned functions often have evolved in response to momentary needs rather than in anticipation of future organizational requirements; and a system structure may represent little more than the sum of piecemeal modifications that have occurred over the history of the organization. Hence, an organization's structure (which shapes its mode of function) may not be particularly relevant to current needs.

The factor that distinguishes PPB, however, is its inherent self-consciousness. PPB imposes on each organizational unit an awareness of its purpose, of its mode of function, and of the interrelationship between the two. Moreover, program budgeting incorporates an analytic capability designed to guide the development of the structure and functions of the system according to the evolving character of system needs

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and/or objectives. The importance of this analytic capability is difficult to overemphasize, for only through analysis can program budgeting fully realize its characteristic self-consciousness. Without regular, relevant analysis, the PPB system can be little more than a reshuffling of the old system's elements that entail no operational awareness of the dynamics of structure, function, and objective.

As a tool for organizational coordination, PPB can benefit a broad variety of purposeful systems. But it is almost essential to school systems, which usually are characterized not only by the large, entrenched, and highly politicized bureaucracies found in many types of organizations, but also by a peculiarly complex and uncertain array of objectives and functions. We have come to this conclusion largely as a result of our participation in the recent Danforth Foundation Study of decisionmaking in big city school systems. As part of that study, we devoted more than two years to analyzing decisionmaking in the Boston Public Schools. There we found that resource allocation seldom was the product of a logical series of explicit, rational decisions. Instead, it emerged as a combination of previous budgets and programs, personal estimates, political bargaining, and force of circumstance. Resource allocation procedures in Boston were marked by a short-sighted and narrow view of the system as a whole, of the system's actual goals and needs, of the long-range and system-wide implications of present policies, of the measured performance of existing programs, of the lessons learned from program development, and of the paths that can lead to rational resolution of resource conflicts. Unfortunately, we also concluded that by their very structures, school systems are antagonistic to analysis and reform. Thus, the frequent disorganization of educational administration combines with an important yet intricate set of objectives to insulate school systems from all but the most intensive and sustained fact-finding efforts.

Program budgeting can help to ameliorate such school system decisionmaking in several specific ways. Through PPB, programs are designed to operate with specific objectives, the costs of maintenance and operation are clearly represented, estimates of program progress are developed in program memoranda, and recommendations and problems are communicated vertically and horizontally within a structure that groups system

activities with related objectives under a common authority. Unfortunately, though, some educators have looked naively to PPB as a panacea, believing that implementation of program budgeting automatically will lead to better policies and allocations of resources. This attitude ignores several real and persistent difficulties. First of all, implementation of program budgeting is itself a considerable task. It entails special problems of design, development, and reorganization that have undermined several PPB efforts in the past. Implementation usually proves to be a greater stumbling block than either the theory of program budgeting or the operation of a completed PPB system.

Secondly, better decisions cannot be produced simply by a system, no matter how comprehensive and sophisticated. Although regular use of relevant analysis certainly militates for better decisions, the analysis itself is only as good as the decisionmaker, the analyst, and the data allow. Nonetheless, despite the fact that PPB cannot promise better decisionmakers or analysts, it does make reliable data for analysis more readily available than they are in most school systems.

Finally, few educators realize the meaning and importance of balanced implementation--implementation that recognizes the central role of the analytic function in relation to the budget and control functions of program budgeting and consequently insures the independence of the analytic branch of the realized PPB system. Failure to consider the question of balanced implementation is almost certain to result in a program budgeting system that comprises little more than program accounting, as several governmental agencies can attest. Yet, administrators who are thinking about adopting PPB, or actually have begun implementation, often find it difficult to distinguish among the extra budgetary aspects of program budgeting and to direct analysis to more than primarily budgetary concerns.

The significance of balanced implementation perhaps can be clarified by examining the most frequent criticisms of program budgeting. These are of several distinct types: Schick [1] and Wildavsky [2] use the experience of the federal government to demonstrate the difficulties of implementing PPB and of maintaining the continued function and application of analysis; Hartley [3] comments on the organizational

problems that may be encountered; and Quade [4] provides warnings about the limitations of systems analysis in general. Most of these criticisms, however, relate to two major problem areas: the distortions inherent in program structures and categories, and the behavioral obstacles to implementation. Aware that critics often view these problems as insurmountable, we paid special attention to them during our study of the Boston Public Schools, and tentative answers to several objections have emerged.

The first group of objections focuses on supposedly inherent problems of program structures and program categories. One problem that occurred in federal applications of program budgeting was the lack of a clearly focused program structure. Government agencies were confused about whether the structure was designed primarily to assist top-level decisionmakers or to help department heads (middle management). Yet, this confusion should be neither very likely nor very serious when implementation is balanced, gradual, and diversified. Such implementation would begin with a structure designed primarily to serve the central office, but that structure would evolve in a decentralized way as the lower levels of the school system came to articulate their variations on the central office's objectives and programs. In this way, the program structure could come to serve all levels of the school system, though program categories themselves would remain oriented toward the central office. Although the processes of evaluation, analysis, and budgeting must remain functions of the central office, the evolution of a program structure should be a cooperative effort, and significant aspects of program development should be a major responsibility of departments within the school system.

Many critics contend that program budgeting inherently stresses the paperwork over the product, that building a program structure, collecting data, and preparing program documents become more important than developing more effective programs and improving resource allocation. Our experience in Boston argues against this position, for we found that personnel at the lowest level of the system could be trained to cope efficiently with PPB paperwork and not to become bogged down in it. The key here seems to be education in the real meaning of the

forms to be completed; ongoing workshops in the aims and methods of program budgeting could prevent overconcentration on paperwork. In addition, implementing PPB at *all* levels of the school system, rather than from the top down, can dispel the notion that PPB paperwork is no more than "another bunch of forms for the central office"; as programs at the lower levels emerge, personnel at those levels should become aware that the procedures they follow and the data they provide have direct bearing on their activities and achievements.

More important is the contention that program budgeting and program structures inherently direct analysis to budgeting and not to policies. This seems to have been the experience of the federal government, but our experience in Boston was insufficient to determine whether the objection holds true for a school system. The problem, however, seems to depend on how the program structure is built. If it is designed for management and control purposes, and if budgeters and the line-item budget largely shape it, the program structure naturally will reflect budgetary concerns and direct analysis to those concerns. But if the program structure is designed for planning purposes and built by structural analysts, analysis should be directed to policies.

Still, the interpenetration of budgetary and analytic concerns is a real danger that can hamper the development of better policies. To ensure that analysis will occur where it is needed for policy decisions, PPB implementation should stress the organizational separation of the analytic from the budgetary branch by creating a central analytic staff sufficiently capable and independent to carry on its work without deference to the budgetary branch.

Another objection based on federal experience is that program budgeting produces vast amounts of data that inundate the decisionmaker but have little meaning because they are not causally related. Although this problem may have arisen in various government agencies, there is no reason to believe that it is inevitable. A meaningless flood of data probably is a function of poorly design, understaffed PPB systems which do not have an analytic staff sufficiently large, skilled, and diversified to digest and interrelate data and to present decisionmakers with specific recommendations and alternatives. What this objection

refers to is a blurring of the distinction between the analyst and the decisionmaker, a fault that forces the administrator to perform analytic tasks for which he has little time or training. An effective implementation effort might avoid this problem by relieving the analyst (or analytic branch) of line responsibility.

The last of these inherent problems of structure is the supposed inadequacy of program memoranda, which have been criticized for being simple reflections of current policy and products of organizational compromise instead of careful analyses of alternative programs. Admittedly, it is easier to write a standard program memorandum calculated to please the central office than to produce a searching analysis of a program's cost and effectiveness; and most organizations tend to take the easier route. Our experience with the virtually unchanging and unthinking project applications of one department of the Boston Public Schools bears out this assumption. Yet program memoranda will be stagnant and meaningless only if those who create them know little of what the memoranda are supposed to be and do, and only if they have little stake in the documents or in the improvement of existing programs. Hence, implementation should provide both for in-service training sessions designed to educate system personnel in the meaning and consequences of program documents, and for a decentralized, responsive system that will show all personnel that they have a real stake in the documents submitted to the analytic branch. A PPB system like this can help line operators and administrators to articulate desire for change in terms that are useful for program memoranda.

The second major group of objections covers problems more behavioral than those we have already considered. Prime among them is the contention that program budgeting exposes and increases organizational conflict by forcing opponents to state their cases explicitly, in terms of cost and effectiveness. Indeed, PPB underlines organizational conflicts; but unless such conflicts are brought to light, they cannot be resolved rationally. Though it may be disruptive at first, clarifying conflicts ultimately benefits the organization by illuminating the bases of decisionmaking. The same is true for the practice of "budgeting by bargain," which critics also suggest is a pattern that program budgeting will

disturb. In the Boston School System, and in many others, budgeting by political bargaining leads to gross inefficiencies; thus school systems can only benefit if this process is disturbed and changed. Organizational development work can facilitate the change by ensuring that budgeters understand both the purposes of program budgeting and the greater power to secure appropriations that comes from an analytical presentation of budget requests. Moreover, by separating the analytic from the budgetary branch we can ensure that all bargaining (as trade-offs among departments, districts, and programs may be called) will be in terms of resources and effectiveness, and not in simple, undifferentiated dollar terms. Given comprehensive and balanced implementation, program budgeting will lead budgeters to advise analysts, to translate required resources into dollars, and to refrain from the direct bargaining that is so susceptible to political considerations.

Closely related to the previous objection is the belief that program budgeting poses a real threat to lower-level personnel and budgeters, both of whom are accustomed to insularity and routine and so resistant to change--according to the critics--that program budgeting may be unable to involve them to any degree without being sabotaged. As for lower-level personnel, our experience in Boston implies that teachers may be better disposed to innovation in general, and to PPB in particular, than almost any other members of the school system. In addition, whatever resistance lower-level personnel may have should change to advocacy when they understand that a decentralized, responsive PPB system offers them more and better opportunities to influence program development.

Having attempted to illustrate specific ways in which balanced implementation constitutes the response to major criticisms of program budgeting, we now must examine the peculiar importance of balanced implementation to PPB efforts in education. While an important thrust of program budgeting is simply to integrate analysis with organizational structure in order to facilitate more rational decisionmaking, the analytic phase has a greater role to play in school systems than in almost any other type of organization. In systems that operate with relatively simple objectives achieved through processes that are clearly understood, PPB can be seen primarily as an administrative aid designed to improve

the efficiency of the organizational structure *qua* structure. In such cases, analysis is directed largely to structural and budgetary matters; without significant alteration of the system objectives and functions, revisions probably will become less frequent (and less necessary) with time; and the budgeting and allocation functions of the system finally become thoroughly routinized.

In education far more is at stake than revisions of objectives and program structures, although even these stages in the PPB system's evolution would continue for a long time. It is important to realize that educational policies ideally relate directly to an understanding of educational processes. Thus, in a planning context that involves the development of educational policy, we must examine questions of organization and timing of curricula; we must assess the relative merit of different instructional aids and teaching methods; and we must investigate such noncurricular quantities as the effects of the student-teacher ratio on the achievement of different age groups, the effects of different physical education programs on student morale in academic areas, and the effects of various guidance programs on truancy rates. Answering such questions would enable us to make substantial progress toward achieving educational objectives; but we do not yet understand educational modes and processes clearly enough to be able to furnish such answers. By formalizing the structures that regulate data collection and program analysis, however, we simultaneously can work towards useful planning models and utilize the results of analysis to inform the selection of alternative programs. Thus, analysis in program budgeting and education can be both a research tool and an evaluative technique; and because analysis can play this double role, balanced implementation is especially important in educational applications of program budgeting.

The input-output relationships of education are sufficiently complex that casual policy analysis is not a satisfactory approach to resolving their different factors. Specific issues--such as whether to invest funds in halving the student-teacher ratio or in developing new physical facilities--could be subjects for occasional policy analysis conducted without a PPB framework; but the more fundamental and pressing educational questions require more comprehensive and continuing investigati tigation.

Precisely because of the large scale and scope that such investigation requires, program analysis within the framework of program budgeting is the most appropriate way to explore the broad educational principles upon which we might base a gradual revision of the educational process itself.

In sum, we see that balanced implementation can oversome the principal obstacles to successful operation of an educational Planning-Programming-Budgeting System, and that to achieve balanced implementation, we must maintain the distinction between analysis and program accounting. In addition, we must deal specifically with required changes in organizational patterns and information, budgeting, and evaluation systems. Finally, we must recognize that effective educational policies absolutely depend on a working knowledge of educational processes. By incorporating a conception of analysis that includes research applications, PPB can become a powerful tool for solving many of the resource allocation problems currently encountered in educational planning and programming.

RESPONSE TO SYMPOSIUM PAPERS

K. George Pedersen*

My background and interests lie in the area of educational administration; consequently, any reactions that I have will be from that perspective. In other words, I am not an economist viewing what has been stated here this afternoon, but rather a student of administration who has some interest in the area of educational finance. I leave the perspective of the economist to my very esteemed colleague, Selma Mushkin, who follows on the program.

As I am sure most of you are aware, and it has been identified here, there is very little in the way of middle ground, as far as the question of program budgeting is concerned. On the one hand, you have its very strong detractors, the Wildavskys, if you will, and their followers who argue very strenuously that to use it and to implement it is dysfunctional in terms of improving the rationality of decisionmaking that goes on. They present their viewpoint in such rather ominous articles as ones entitled, "Rescuing Policy Analysis from PPBS" and so on. On the other side of this discussion, we have supporters such as those that you heard here today who claim that through the effective utilization of such procedures as PPBS, greater rationality can be introduced into decisionmaking as it relates to the allocation of very scarce resources.

My biases tend to lean in the latter direction, but I do share some of the concerns that have been put forth in these four papers. While my own knowledge concerning the status of program budget implementation is clearly limited, those perceptions that I have suggest all is not going too well.

In other words, I am sympathetic to the underlying assumption of all four presentations--namely, that many of the problems and criticisms of PPBS focus on the way in which implementation is taking place. If

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rationality as evidenced through program budgeting procedures is to be introduced on any extended basis, it seems apparent to me that a number of critical concerns need to be answered.

If one analyzes the basis upon which decisions are made in relation to the development of a budget, it is possible to conceive of three domains. There is one that we might call the *educator's domain*--that is, decisionmaking that is based upon what we know about teaching and learning processes. The second, which we might designate the *economist's domain*, is one in which we try to make decisions that are based on the concept of efficiency. And third, we have what I have called the *political scientist's domain*, relating to the political aspects of allocating resources.

Let me attempt to react very briefly within this type of framework.

First of all, as far as the educational domain or dimension is concerned, my first reaction regarding implementation problems relates to an assumption that appears to be implicit in what has been said here today but which I want to argue must be made very explicit. Simply stated, we do not really understand the teaching and learning process in anything approaching adequate detail. I would guess that the majority of people who made presentations will agree with that and yet argue strenuously for the continuance of PPBS. If you will accept my statement that we do not really understand what teaching and learning is all about, then it seems to me this has very important implications for PPBS and its implementation. Let me just point out one or two.

First of all, I suppose partly in response to Sue Haggart's viewpoint in terms of program structuring, we very conveniently use a term called "needs" and then proceed to develop programs with a wealth of objectives in an attempt to satisfy these needs. It seems, first of all, that we are obviously faced with the age-old problem of defining the tasks of the educational process. Large numbers of people have attempted it, but I doubt that there is very much in the way of consensus.

But assuming for a moment that we could get some agreement on what the tasks of education were, we must then make some decisions on programmatic efforts in which the teaching-learning process has to take

place. But the research evidence that we have suggests that we really do not understand what is going on within that particular process. It seems to me that it remains a very critical problem and obviously one that we are going to have to deal with in greater detail in the future.

Secondly, and clearly related to the latter, is the question of teacher effectiveness. Most people in education, at least, would agree that, modern technology notwithstanding, teachers are probably as important today as they were 50 or 100 years ago. And yet because of our inability to understand the teaching-learning process, there is no consensus on what constitutes teacher effectiveness, supposedly one of the major inputs into the educational process and therefore presumably a critical component in educational program budgeting.

Related to Don Levine's point on research, it seems that consideration of PPBS does focus on the critical need to understand the production functions related to education. Obviously, the process of implementing and planning a system successfully is critically dependent on an increased understanding of the inputs and the outputs. And in this regard, I am quite impressed with the kind of work being done by a number of researchers today following on the likes of Alan Thomas and Jack Holland, just to name two people I have seen around this meeting who did some initial work in production functions, where people like Levin, Michaelson, and others are providing us with some valuable added insights.

Incidentally, it may be possible through th s latter type of research to gain some new understanding regarding the educational impact coming from sources other than formal schooling such as the home, the community, and the like. It occurs to me on the basis of the research evidence we have at the present time that if eventually a PPB system is going to have the capacity to give us added understanding, it is going to be necessary to consider the efficient utilization of resources outside the formal school setting. I am convinced that it is critical to PPBS and to other forms of analysis that this kind of research go on.

Moving on to the economic domain, as I said earlier, my focus here is on the maximization of outputs to inputs, and it seems to me, as pointed out effectively by Mrs. Carpenter, that PPBS has much to offer.

One of the major weaknesses of educational systems, and one that is related to the point I made earlier regarding teaching and learning, is the general failure to consider alternative strategies to achieve the same ends. Assuming it is possible to attain consensus on what it is that we wish to achieve, much is needed to be done in order to understand better the effects of a variety of input mixes. Clearly, we have a large range of alternatives in the form of people and facilities and equipment and materials, and it seems evident to me that a variety of creative alternatives in concert with cost-effectiveness analysis are needed if improved decisionmaking is to take place in education.

I am very much in agreement with the point of view expressed that efforts are being made by school systems in terms of alternate programmatic approaches and cost-effectiveness measures but that these are very limited in their effectiveness at this particular point. My suspicion is that districts have devoted their major efforts unduly in the area of program definition, a point which I will leave to Selma Mushkin to develop somewhat further.

Moving on to the final area to which I have alluded, the political dimension, one of the points raised by Don Levine relates to the bureaucratic structure within which educational decisions have to be made. It seems apparent that the implementation of PPBS can serve as a catalyst in determining the nature of that bureaucratic structure in terms of either increased centralization or in terms of decentralization. Strong proponents of program budgeting tend to argue that decentralization of decisionmaking is one of its major features. And yet I am in complete agreement with Brook Derr when he suggests that the dominant pattern of impact in systems that are utilizing PPBS has been to centralize further the decisionmaking function. Program areas, the definition of objectives, alternate strategies for achieving objectives, input mixes, and so on, in many cases, have tended to fall within the bailiwick of some central administrative subunit.

This leads me to a second point which was raised by Brook Derr, and it is concerned with the flow of communication problems. In the one large city system about which I know a little bit, the whole process of defining and implementing program budgeting has been assigned to

highly competent people, not one of whom has any previous training or background in education or in the humanities. I am not advocating that everyone have years of experience in education or have taught for long periods in order to have an understanding of the school system. But I do get somewhat concerned when the five people that I know are employed in that school system have exclusive responsibility for the development of this program, and I think that with perhaps one exception the members of the group have engineering backgrounds only.

I want no mistake made--they are clearly very competent people. But I do think that it is imperative that we go along with some kind of strategy, perhaps the one that Brook Derr proposed, of ensuring that there is extended interaction within the system.

Finally, to close, let me draw from a phrase in Sue Haggart's paper in which she says in part: "... in keeping with the overall concept of PPBS *as a management tool* in educational planning." Unfortunately, because of a failure to recognize program budgeting as a tool and, instead, regard it as some form of panacea, many school systems have become seriously disillusioned. There has been a general failure to recognize the rather comprehensive nature of the whole process. And included, of course, in the latter is the task of recognizing the need to advance knowledge about the system. Clearly, ongoing research plays a very critical role in program budgeting if it is going to be successfully implemented.

My overall reaction to these four papers is clearly positive. I think attempts have been made, and successfully so, to identify some of the more critical elements of program budgeting and certain of the major deterrents to its implementation. Also, I am impressed with the proposal of integrating some of the work that is being done in organizational development with program budgeting itself. I think there is a very critical need that we analyze school systems in a systematic way. There has to be some kind of rational framework; whether it is program budgeting or something similar really is not a major concern. But I think that the word "accountability" is a very clearly prominent one at the present time. I suspect that it's going to be with us for a considerable while. Thank you.

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EDUCATIONAL PLANNING AND PROGRAM BUDGETING: A COMMENTARY

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Analysis, as the papers presented here make plain, is a process of comparing and assessing costs and benefits of competing programs to help those who must make the difficult choices choose better among the options.

There are no fixed rules about analysis; analysis remains an art that will not yield to rules. Among other things, an imaginative search of policy options is required, as well as an intuitive sorting out along with the policy deciders of those options that are politically feasible [1].

While there are no hard and fast rules, standard steps have come to be taken in carrying out program analysis. These steps are not complex to understand, although they may be difficult to carry out. It is on those steps that there is no divergence of views among the panel members here.

But some of the literature on educational evaluation and analysis suggests that a whole new complex structure is in the making, along with a rigidity in definition of components. In fact, some of the categories and some of the definitions that have come to be applied in the education area I do not understand, nor do I fully comprehend why this type of development has occurred. It might be useful to pursue the origins and purposes behind some of the program analysis and evaluation literature in education.

I am going to agree on PPBS, however, with my fellow sexists on the panel. Keep it simple; get rid of the jargon. Program analysis is an exercise in common sense, not in elaboration, not in instrumentation. Hard questions are being asked; answers are being sought to those questions; and that's about it.

A disservice is done by making analysis and evaluation more complicated than measurement of costs and effects already is. A shortage of

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experienced analysts exists. We have found that people with good common sense and a knowledge of their programs can learn to ask questions, can be given occasion to ask questions, and can learn how to carry out a reasonable mini-analysis [2]. (That's a far-distant kind of improvement on the staff work that has been available heretofore in any program area.)

The comments made here concentrate on three additional points:

1. Evaluation is a facet of analysis.
2. Educational structuring that is not isolated from the rest of public services serves the public purpose.
3. Analysis within a system for policy assessment gives new emphasis to experimentation with policy outcomes.

ANALYSIS-EVALUATION-ANALYSIS

Analysis has an important role to play in education, as does evaluation as a feedback process into analysis for program decision. Evaluation studies that have a tone of negativism should be reviewed so that negative findings are complemented by a formulation of options that would be a positive response to negative findings. As a step toward assuring positive consequences of negative findings, I have proposed elsewhere that the government, in releasing RFPs for evaluation studies, call not only for evaluation but, as a part of the evaluation design, for a formulation of options and perhaps even a rough skitching out of the costs and effectiveness of those options [3].

Evaluation studies generally show that gains in performance are not achieved by changes in school inputs [4]. For example, the negative findings on Head Start may be cited [5]. In the instance of Head Start, there was a positive follow-up with the Follow-Through Program. But this is a rare follow-up in the evaluation context. Again, I emphasize that evaluation is a part of the process of PPB and has to be viewed not in isolation but as a feed into analysis lest harm be done to public provision of public services.

Often it is said: "There is a crisis in the schools." Contributing to this crisis of competence are the popularized statements

derived from the educational evaluation studies that have been made. In the translation, qualifications are omitted; and as the word is passed along, the findings become simplified, straightforward, or even turned about. The conclusion for the public is: "Schools do little to improve child learning"; and for many, the translation has been moved still further to: "Schools are harmful."

STRUCTURING EDUCATION AS A *PART* OF A SYSTEM

There is great danger in structuring education into further isolation from related public activities and services. Program interrelationships are strong, and markedly affect the outcomes of public spending. Perhaps it might help to borrow from the health field concepts leading to a threefold classification of each public product, namely: (a) preventive services; (b) treatment services, or servicing that which exists; and (c) development services, or what has been labeled as "positive" health.

It is tremendously helpful to those who have to make the hard expenditure decisions to know whether they are doing something that will prevent public dependency on the next round--for example, that will prevent mental retardation. Or, whether each year the jurisdiction will have the same load of high-cost children, difficult to educate and for whom the educational outcome is less than fully rewarding.

The programs that can prevent public dependency often are in public service areas outside a traditional educational mission. They happen to be nutrition programs, child-material health programs, etc. Education can ill afford to block itself out as an isolated phenomenon so that year in and year out it carries a certain load of children whose learning could be enhanced by nonschool programs.

A SYSTEM FOR INNOVATION AND EXPERIMENTATION

There is still an added reason for viewing the whole of the PPB system as a system. While analysis is surely the core of a system's effort, it is important that there be an occasion for program analysis, for the design of options, and for a more rapid review of options than

has heretofore been customary. If we are to move into an epoch of change for betterment, it becomes especially important that we have, in the course of policy deciding for all public expenditures, a hard reason for reviewing, assessing, costing, and making sure that the programs are achieving the results that are being sought.

Implementation of program analysis and evaluation in education begins to make concrete a reason for experimentation--experimentation that can help uncover the facts that we know altogether too little about, but that have important bearing on the effectiveness of public expenditures. The federal government has now made a beginning toward assessment of the feasibility of experimentation with voucher programs in a government, with the cooperation of the school system in Gary, Indiana. If one moves in the direction of an integrated program planning system, the real need for research and demonstration comes to be underscored in a more significant way because there is immediate application of research and demonstration findings. We can look in the future to more experimentation, more testing out of public programs prior to widespread adoption.

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DISCUSSION

Question (Alan Gaynor, UCEA, to Mrs. Carpenter):

You mentioned a composite program that was made up of three parts. What procedures did you use to partial out the effects of the subparts?

Answer (Mrs. Carpenter):

That's an excellent question. I tried to defend myself from it by emphasizing that the exercise was a theoretical one because we did not have experimental data which verify that given in the combinations I described, these subcomponents would have these effects. The best that we could do at the time was to talk with the people who were deeply involved with the program--students, project administrators, and teachers--to get a general feeling for which parts of the program were actually doing what.

Question (Lewis Bonney, San Bernardino City Schools, to Miss Haggart):

Miss Haggart mentioned common-sense measures of effectiveness. I wonder if she could give us some examples of those.

Answer (Miss Haggart):

Yes and no. Good or bad. They're very common sense; they're qualitative, I'll admit. But still, when coupled with the cost and other dimensions of the program, they will give you a measure that is better than not having done any analysis.

You could say, for instance, that one program, in the judgment of all the people that are involved with it, is better than another program. When you have a better understanding of what is involved in the two programs, you then have a better information base. You can make a more informed decision from that.

You could operate for a long time with measures of effectiveness in terms of any of the subject areas or any of the program areas, and you could make up your own decision rules within your school system. But the tendency might be first to discover whether or not a student

can read and then to decide whether you want to go into his reading at the A, B, C, D, E, or F level in his grade. So, by common sense I mean the kind of measures that will help initially while you are seeking to refine those measures to reach a more precise level of analysis.

I dislike cost-effectiveness ratios expressed to three or four decimal places because you seldom know enough about the system, the program or anything else to presume such accuracy.

Question (Stan Tempkin, Research for Better Schools):

I see a conflict inherent in the presentations, and I would like to point out its extremes.

PPBS seems to be saying, "Define some idealized goals. And somehow an organization (and in the case of schools, an organization built basically to maintain) will emerge." But the organizational theorists seem to be saying you must start where people are and then build in an organizational capability that enables them to look clearly at where they are and evolve from there.

It seems to me that these two positions are at opposite ends of an extreme, and I'd just like to hear someone comment.

Answer (Dr. Derr):

I think your observation is right in a sense. What I am saying is that the goals have to come not only from people within the system, but from the community and the students--a kind of mass involvement that will allow us really to get at some of the burning issues, especially in urban education, and at the goals that people in the cities, and the suburbs, have for their schools.

And I think that we have procedures now to do that, to let the goals come from the people.

But, by building in the kind of goal-setting process that would take place at the board and top staff levels, I also see these idealistic goals fitting in. I see the bottom influencing the top instead of producing anarchy, with everything coming from the bottom.

2d Answer (The Chairman, Dr. Levine):

I wonder if, in fact, the extremes that have been mentioned do

exist. I think that both program budgeting analysts and organizational theorists recognize the need to involve many people in the organization in the definition of goals and program structure. The point is to allow participation at varying levels of responsibility in order to increase communication and information for more effective management.

Question (Edgar Thomas, East Windsor Regional Schools, New Jersey to Miss Haggart):

We have a system with a PPBS program, and I am one of four analysts. Miss Haggart said that concentration on analysis of the subject level does not yield the full benefits of the PPBS program. Would she please elaborate?

Answer (Miss Haggart):

I said that the results of analysis or evaluation must have some place to go so that they can be measured against current and alternative programs. I said that I thought it very easy to get so bogged down in the analyses at the program element level, or at the subject level, that you did not take time to group them according to some much broader institutional goals or objectives.

Your question is somewhat related to Mr. Tempkin's question, which was that the program structure itself does not or should not at any time be designed to reflect a particular organizational structure. The program structure reflects what you think you ought to be doing, or what you think you want to be doing. But the main thing I was warning against was "nitty-gritty" cost-effectiveness analysis in an unbalanced way that obscures the full information content which you could get out of an operating PPPB system.

Question (Agnes Robinson, Sacramento State College):

Would you comment on the PPBS structure as it has developed in the State of California? It certainly is diametrically opposed to what you have suggested this morning.

Answer (Miss Haggart):

I think it is a good step. I think it does many of the things that

I warned against. It's very similar to efforts in Pearl River; Dade County; Skokie, Illinois; and elsewhere. I would like to see it changed eventually. But I also will support it as it stands, and have made that statement to the State Board of Education, because it is a beginning, and I hope that a more goal-oriented program structure will evolve from it. I, and my associates, will do all we can to ensure that California gets a program budgeting system which is a versatile management tool rather than a new control and reporting system. But as it stands now, I think it is headed toward control and reporting, and I would like to see it shift a little bit, about 180 degrees.

Question (Dan Rogers, Agency for International Development, to Miss Haggart):

Can you elaborate on what is diametrically opposed in the California system?

Answer (Miss Haggart):

I would rather not get into a lengthy discussion at this time. In brief, California's structure is organizational or grade-level in nature rather than purpose or goal oriented. Over the next six or eight months, there will be several program structures coming out of various places. We have one in our report, which I showed you in the slide. RC/ASBO is coming out with an illustrative program structure. I suggest that you compare these various program structures.

Question (Steve Droe, University of Kentucky,to any one of the panel members):

Most of what I have heard in the discussion of PPBS is about the B and very little about the two Ps. This seems to be true in the literature as well. I am wondering when we can begin to achieve some sort of balance and pay attention to the entire concept, which includes P, P, and B.

Answer (The Chairman, Dr. Levine):

One of the main reasons for this Symposium is to suggest that many of the criticisms of program budgeting draw their strength from bein

able to point to unbalanced, and therefore bad, implementation efforts that center on the budgeting aspect of program budgeting.

What we've been suggesting here is that effective educational program budgeting involves the development of an analytical capability. The purpose of this analytical capability is to evaluate alternative programs and policies so that a school system can have better information about the implications of long- and mid-term decisions that have to be made. In this way, program budgeting hopes to improve the context of decisionmaking. I would say that both this emphasis on planning, which, in many ways, means the analysis of alternatives, and the further point that planning cannot be done in a casual way, but must be institutionalized by having a focal point and regular information-gathering procedures within the organization, are perhaps the two major points of the Symposium.

Any further questions?

[No response.]

The Chairman, Dr. Levine

This panel is encouraged by your attendance today, and we thank you for your attention.